REPORT OF THE FEDERAL HORTICULTURAL BOARD

UNITED STATES DEPARTMENT OF AGRICULTURE,
FEDERAL HORTICULTURAL BOARD,
Washington, D. C., August 31, 1928.

SIR: I submit herewith an executive report covering the administration of the plant quarantine act for the fiscal year ended June 30, 1928.

Respectfully,

C. L. MARLATT, *Chairman.*

Hon. W. M. JARDINE,
Secretary of Agriculture.

INTRODUCTION

REORGANIZATION

Under the direction of the Secretary of Agriculture, plans were fully worked out during the past year to bring all plant quarantine and related regulatory and control activities of the department under a new organization to be designated as the plant quarantine and control administration. The details of this reorganization as to appropriations and language were incorporated in the estimates for the Federal Horticultural Board, the Bureau of Entomology, and the Bureau of Plant Industry for the fiscal year 1929, and became effective July 1, 1928.

This reorganization involved particularly the Federal Horticultural Board and the Bureau of Entomology, and to a slight extent work hitherto conducted by the Bureau of Plant Industry. Two main purposes were in view in this reorganization: (1) Better administration by bringing together into one unit all the activities of the department which deal with the regulation and control of movement of plants and plant products on account of insect pests and plant diseases, and (2) relief for the research Bureaus of Entomology and Plant Industry from the growing volume of regulatory duties of this nature.

With respect to the first of these purposes, it will be recalled that the plant regulatory work under domestic quarantines promulgated under the plant quarantine act has been distributed to the Federal Horticultural Board and, in cooperation with the board, to the Bureaus of Entomology and Plant Industry. The Bureau of Entomology has been charged with the detailed administration of very large regulatory appropriations coming respectively under the quarantines on account of gipsy and brown-tail moths, Japanese and Asiatic beetles, the European corn borer, and the Mediterranean fruit fly in Hawaii. The only appropriation to the Bureau of Plant Industry which involved regulatory and control work was concerned with the enforcement of the white-pine blister-rust quarantine. In the administration of these quarantine and control subjects, these bureaus have acted as agents for the board. In other words, the determination of quarantines and the regulations thereunder and the general administration was by the board under the authority of the plant quarantine act. The burden, however, of field administration and of personnel and accounting was carried by these bureaus. While this arrangement has been fairly satisfactory in the past, it necessarily results in a certain division of authority which in general is undesirable. As already indicated, a much more important objection is the recognition, which has become general in recent years, that the existing situation was gradually absorbing much of the time and interest of important research personnel. Men who from training and experience were competent to do good research work were being constantly drafted into the administration of quarantine and regulatory work. This re-

organization will, therefore, relieve these bureaus of this handicap, to the great benefit of research activities.

These changes and redistributions of appropriations have in themselves involved no increase in the appropriations concerned, direct shifts having been made of both appropriation items and personnel. The redrafting of the appropriation units both for the Bureau of Entomology and the plant quarantine and control administration was the subject of very careful study by the bureaus concerned and by the solicitor and the Budget officer of the department, and the new language and authority thereunder is believed to be a great improvement over the old language of corresponding appropriations which had grown up piecemeal and lacked uniformity or logical arrangement. In the case of the plant quarantine and control administration, the plan of subappropriations was adopted which will enable the Secretary of Agriculture, under the provision for interchange of appropriations, to meet emergencies arising from new or dangerous pests such as, for example, the emergency occasioned by the spread of the Mexican fruit worm into Texas last year. Under the old system of appropriations for the Federal Horticultural Board, there was no possibility whatever of such adjustments, except by action of Congress. This feature alone may be of very large value in the case of any similar emergency which may arise in the future.

This reorganization increases very much the volume of administrative work under the new plant quarantine and control administration, bringing that appropriation up to $2,971,050 for the fiscal year 1929. This does not include, however, a special appropriation of $5,000,000 for quarantine and control work on account of the pink bollworm with the object discussed elsewhere in this report, nor of any appropriation which may later be made on account of the corn borer under the act that was passed at the first session of the present Congress authorizing such appropriation.

In addition to the plant quarantine and regulatory duties which come under the authority of the plant quarantine act of 1912 and the related Mexican border act, the new plant quarantine and control administration will be charged with the enforcement of the insect pest act of 1905 and, in cooperation with the Post Office Department, of the terminal inspection act of 1915, and with the act (1926) authorizing the inspection and certification of exports to meet the sanitary requirements of foreign countries.

FEDERAL PLANT QUARANTINE BOARD

In connection with the reorganization and bringing together into one unit of all the plant quarantine and regulatory activities of the department, the act making appropriations for the Department of Agriculture for the fiscal year 1929 provides that, "* * * Hereafter the functions of the Federal Horticultural Board shall devolve upon and be exercised by the Plant Quarantine and Control Administration, the chief of which shall serve ex officio as chairman of an advisory Federal Plant Quarantine Board of five members, the four additional members to be designated by the Secretary of Agriculture from existing bureaus and offices of the Department of Agriculture, including the Bureau of Entomology, the Bureau of Plant Industry, and the Forest Service, and who shall serve without additional compensation." This action therefore retains the principle of an advisory board but under a more appropriate title.

AMENDMENT TO THE PLANT QUARANTINE ACT

An amendment to section 10 of the plant quarantine act of great importance to its future enforcement received Executive approval and became effective May 1, 1928. This amendment gives authority, hitherto lacking, to stop and—without warrant—to inspect, search, and examine persons, vehicles, receptacles, boats, ships, or vessels, and to seize and destroy or otherwise dispose of plants and plant products or other articles found to be moving or to have moved in interstate commerce or to have been brought into the United States in violation of the act or of any quarantine order thereunder. The need for such amendment has been felt throughout the whole period of enforcement of the plant quarantine act and has become especially imperative in connection with the enforcement of such domestic quarantines as those on account of the European corn borer, the Japanese beetle, the pink bollworm, and the white-pine blister rust. It is a perfectly natural and frequent habit for motorists and others to pick up in the course of their trips, articles the movement of which is prohibited or restricted on account of these or other pests and carry them long distances—frequently interstate. The present habit of farm roadside stalls for the sale of farm produce has led to a

great deal of unwitting violation of certain of these quarantines, which has been controlled by road stations very largely; but every now and then some individual comes along who refuses to stop or who questions the authority to make inspections and seizures. This new authority will also be of great service in the enforcement of foreign quarantines at ports of entry. Hitherto it has been impossible, legally, to stop the entry of contraband articles or to have them destroyed except through the cooperation of the customs service.

WORK OF THE YEAR

Under the present organization of the Federal Horticultural Board the work of the year as herein reported deals (1) with the branch of foreign plant quarantines, with which is incorporated a report on export certification, and (2) the branch of domestic plant quarantines, more particularly those relating to the control of important pests such as the corn borer, the Japanese beetle, the white-pine blister rust, etc.

The tables included in this report have been carried in the annual reports of this board over a considerable series of years and constitute a continuing record, not available elsewhere, of distinct reference value. One series of these tables gives a summary of the results of the enforcement of the various quarantines in the interception and exclusion from the United States of important new crop pests—insect and disease. Other tables record the importations of the plants and plant products, the entry of which is restricted and safeguarded under the various foreign quarantines.

As indicated in previous reports, the quarterly Service and Regulatory Announcements published by the board constitute a permanent record of the new quarantines and of revisions and modifications of those already in force. The final number of these announcements for each year contains a complete annotated list of the current quarantines, domestic and foreign, as as well as of other restrictive orders.

FOREIGN PLANT QUARANTINES

The enforcement of the restrictions on the entry of plants and plant products under the various foreign quarantines which have been promulgated by the department for the purpose of excluding new and dangerous pests to American agriculture is under the general direction of E. R. Sasscer.

In this work, which is performed by inspectors and collaborators of the board stationed at the more important ports of entry, the board has received excellent cooperation from the Customs Service and the Post Office and State Departments.

Descriptive matter relating to the various foreign quarantines and regulatory orders enforced in the manner described above is available elsewhere, and hence these quarantines are not discussed in this report, other than the summary which has been given yearly of new quarantines and amendments of old quarantines, page 41. Following the practice of former years, the record of inspection work performed at ports of entry and elsewhere in the United States in the enforcement of foreign quarantines and of the importation of restricted plants and plant products follows.

PLANT-QUARANTINE INSPECTION

The enforcement of foreign-plant quarantines and regulatory orders at maritime, interior, and Mexican border ports of entry involves: (1) The inspection of vessels arriving at ports of entry from foreign ports and from Porto Rico and Hawaii; (2) the inspection and disposition of all plants and plant products under restriction found in passengers' baggage by the United States customs officials; (3) the inspection of all plants and plant products, including nursery stock, seeds, bulbs, fruits, and vegetables entered under permit from all foreign countries and localities and certain products arriving from domestic territory; (4) disinfection (fumigation or sterilization) of cotton and broomcorn and other products requiring such treatment as a condition of entry; (5) inspection, in cooperation with customs and post-office officials, of restricted plants and plant products arriving by foreign parcel post; (6) inspection of plants and plant products introduced by the Department of Agriculture and all plants imported under special permit in accordance with the provisions of regulation 14, quarantine 37; (7) inspection of plants (domestic) entering and leaving the District of Columbia; (8) inspection of plant-introduction gardens of the Bureau of Plant Industry; and (9) inspection of fruits and vegetables in the field and at the point of shipment in Porto Rico and Hawaii in accordance with the provisions of quarantines 58 and 13, respectively. In addition, this service inspects and certifies export fruits and vegetables to meet the sani-

tary requirements of certain foreign countries, and at certain ports assists flour exporters by inspecting the holds of vessels and warehouses for the presence of stored-grain insects. The more important features of this inspection work are summarized below.

MEXICAN BORDER SERVICE

Inspectors are now stationed at the following 10 ports of entry along the Mexican border: Brownsville, Hidalgo, Laredo, Eagle Pass, Del Rio, and El Paso, Tex.; Douglas and Nogales, Ariz.; and Calexico and San Ysidro, Calif. Three additional ports, namely, Rio Grande, Roma, and Presidio, have assumed importance from a plant-quarantine standpoint during the year, as a result of the construction of bridges connecting these ports with Mexican towns. Pending the assignment of inspectors to these ports, the problems are now being handled by the customs service. The construction of new bridges and the constant arrival in the markets of Mexican towns on the border of fruit infested with the Mexican fruit worm have greatly increased the problems on the border, necessitating an enlargement of the force at several of the ports.

At the seven ports having rail connections with Mexico a total of 41,193 cars was inspected in the Mexican railway yards. Of these cars, 37,939 entered the United States, 17,597 of which were fumigated as a condition of entry. Three thousand one hundred and ninety-four cars were found to be contaminated with cottonseed and were required to be cleaned before entry was permitted. A charge of $4 is made for each car fumigated, and all fees collected are turned into the Treasury as miscellaneous receipts.

Arrangements were completed on March 15, 1928, for the fumigation of certain cars originating in the interior of Mexico, returning via the Nacozari Railroad and entering through the ports of Douglas and Naco, Ariz. In the absence of car-fumigation houses, only the interiors of these cars are fumigated. The inspectors at Douglas have performed the necessary inspections and fumigations at Naco.

A summary of the car inspection and fumigation is given in Table 1.

TABLE 1.—*Inspection and fumigation of railway cars crossing the border from Mexico, fiscal year 1928* [1]

Port	Cars inspected	Cars with cottonseed	Cars entered	Cars fumigated	Fees collected
Brownsville	305	63	305	229	$916.00
Douglas	[2] 1,236	86	1,236	17	68.00
Eagle Pass	3,047	960	2,455	2,430	9,700.00
El Paso	15,293	655	14,496	3,679	14,692.00
Laredo	10,088	1,134	8,645	8,406	33,208.00
Naco	48	2	48	12	48.00
Nogales	11,176	294	10,754	2,824	11,520.00
Total	41,193	3,194	37,939	17,597	[3] 70,152.00

[1] This table does not include the work performed at Del Rio, Tex., since there is no railway connection with Mexico at that point. Inspectors at this port inspected 27,729 vehicles of various descriptions, 11 of which were fumigated as a condition of entry, and fees amounting to $5.50 were collected and turned into the Treasury.

[2] Does not include 1,486 Mexican gondolas which crossed to the smelter, unloaded, and returned to Mexico.

[3] The apparent discrepancy in the fees collected and the number of cars fumigated may be explained by the fact that it is customary for the railroads to purchase fumigation coupons in advance.

In addition to the inspection and fumigation of railway cars and vehicles entering from Mexico, the inspectors of the board cooperate with the customs service in the inspection of baggage, personal effects, and express packages from the same country. Parcel-post packages from Mexico are inspected in cooperation with the customs service and Post Office Department. During the year, 76,243 pieces of baggage and 5,588 parcel-post packages were examined. These inspections resulted in the interception of large numbers of prohibited plants and plant products, many of which were infested with the Mexican fruit worm and other injurious insects. An itemized list of these interceptions is included in Table 2.

TABLE 2.—*Contraband plants and plant products intercepted at Mexican border ports, fiscal year 1928*

Commodity	Brownsville		Del Rio		Douglas		Eagle Pass		El Paso	
	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number
Apples	163	1,057	10	45	96	176	104	336	414	1,476
Apricots	10	49	2	303	11	130	3	120	2	33
Avocados	315	1,383	23	59			116	526	286	944
Avocado, seeds	35	127	6	31			41	255	94	374
Banana plants	7	31							2	4
Cherimoyas	10	24							45	74
Cherries	1	8								
Corn, ears									113	580
Corn, pounds	109	1,091	24	107	35	300	29	174	55	288
Cotton bolls	24	103					1	2	24	173
Cotton lint, pounds	16	36			1	1	2	14	52	62
Cottonseed, pounds	10	3	13	1	1	1	5	24	24	19
Dates	2	51								
Figs	2	5	4	40	1	120	60	1,115	41	1,090
Grapefruit	65	330	1	1	5	8	6	7	11	75
Guavas	51	348	5	26			16	230	115	599
Mamey	54	101	4	19			13	23	226	390
Mangoes	113	320	8	34	19	38	42	134	277	883
Oranges	352	1,372	48	97	220	599	212	524	768	2,594
Papayas	10	15							9	20
Peaches	63	300	14	279	15	149	22	278	112	1,138
Pears	54	253	1	3	19	81	19	44	218	1,580
Plants	185	1,350	26	184	48	482	62	540	182	1,281
Plums	10	41	3	27	8	27			23	380
Pomegranates	51	263	6	9	9	19	37	406	71	258
Potatoes	23	537	4	16			42	464	246	3,319
Quince	58	175	4	32	34	51	37	251	130	332
Sapotes									28	96
Sugar cane	64	331	48	116	53	78	62	306	223	338
Sweet limes	19	84	1	7	25	41	11	66	113	754
Sweet potatoes	9	146	3	29	37	268	22	189	82	867
Tangerines	10	15							7	37

Commodity	Hidalgo		Laredo		Nogales		San Ysidro		Total	
	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number
Apples	128	455	397	1,479	137	486	639	3,062	2,088	8,572
Apricots			14	379	25	1,089	123	1,018	190	3,121
Avocados	165	1,108	492	3,613	26	71	26	52	1,449	7,756
Avocado, seeds	59	161	45	219	3	11	2	16	285	1,194
Banana plants	1	1	3	8					13	44
Cherimoyas	1	2	41	66	5	5			102	171
Cherries					2	200	9	228	12	436
Corn, ears									113	580
Corn, pounds	38	228	85	369	154	1,137	32	558	561	4,252
Cotton bolls	15	44	2	4	3	16	6	121	75	463
Cotton lint, pounds	12	19	19	68	11	16	1	3	114	219
Cottonseed, pounds	13	519	4	40	6	10	1	2	77	619
Dates	3	281			50	1,967	2	120	57	2,419
Figs	9	195	112	2,216	51	582	46	671	326	6,034
Grapefruit	150	732	22	72	26	102	82	490	368	1,817
Guavas	23	158	229	1,175	12	76	1	2	452	2,614
Mamey	33	58	86	226	2	5			418	822
Mangoes	43	108	233	834	123	535	115	383	973	3,269
Oranges	391	1,836	1,038	3,307	426	1,784	1,620	11,102	5,075	23,215
Papayas	1	1	3	7	12	43			35	86
Peaches	30	185	118	1,633	40	290	308	2,998	722	7,250
Pears	50	134	157	597	24	133	135	909	677	3,734
Plants	144	1,362	323	3,895	153	718	117	718	1,240	10,530
Plums	1	12	32	476	28	512	152	1,895	257	3,370
Pomegranates	44	100	120	526	106	357	6	17	450	1,955
Potatoes	34	205	77	2,446	1	2	40	224	467	7,213
Quince	61	168	168	551	77	284	3	12	572	1,856
Sapotes	8	40	7	27	2	5			45	168
Sugar cane	53	306	111	312	94	446	12	45	720	2,278
Sweet limes	13	69	172	1,799	46	279			400	3,099
Sweet potatoes	10	36	24	175	46	261	3	21	236	1,992
Tangerines	27	148	1	3			28	161	73	364

In addition to the large quantities of certain fruits and vegetables which are entered for local consumption under the permit issued to the inspector in charge for this purpose, there has been a constant increase in carload shipments of these commodities under commercial permit to interior points. During the fiscal year 4,982 cars of Mexican bananas entered. Four thousand five hundred and ninety-two of these cars came through the port of El Paso, Tex. At Nogales, Ariz., 5,753 cars of tomatoes, peas, melons, and other vegetables, consigned to various points in the United States, were inspected and permitted entry.

MARITIME PORT INSPECTION

SHIP INSPECTION

As in previous years, vessels arriving from foreign ports as well as from Porto Rico and Hawaii were boarded promptly upon arrival and a search was made for contraband plants and plant products in the staterooms, iceboxes, fruit and vegetable lockers, and passengers' and crews' quarters. To perform this work full-time inspectors have been stationed at the more important ports of entry, with the exception of those located in California, Florida, Alabama, Mississippi, Georgia, Hawaii, and several ports in Porto Rico. Inspection at these ports has been very efficiently performed by State and Territorial officials serving as collaborators of the board, at a trivial cost to the department. All passengers' baggage arriving from foreign ports was examined by customs inspectors, and that found to contain plants or plant products was referred to the board's representatives for disposition. Passengers' baggage arriving from Hawaii and Porto Rico was inspected by representatives of the board for contraband plants and plant products.

Table 3 indicates, by ports, the number of ship arrivals, ship inspections and those carrying contraband plants or plant products, either in passengers' or crews' baggage, stores, cargoes, or passengers' or crews' quarters.

TABLE 3.—*Ships inspected during fiscal year 1928*

Port	From foreign ports						From Hawaii						From Porto Rico					
	Direct			Via United States ports			Direct			Via			Direct			Via		
	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband
Astoria	376	199	161	1,348	136	32	3	3	3	10	8	1	0	0	0	0	0	0
Baltimore	727	593	284	715	625	251	1	1	0	0	0	0	20	19	7	20	19	4
Boston	1,357	1,124	703	264	201	68	0	0	0	0	0	0	17	17	5	1	1	0
Charleston	228	226	107	65	65	22	0	0	0	0	0	0	0	0	0	0	0	0
Chicago	6	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detroit [1]	1,042	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galveston	385	385	267	496	257	71	0	0	0	3	3	0	9	9	9	9	8	5
Gulfport [2]	10	10	0	31	31	0	0	0	0	0	0	0	0	0	0	0	0	0
Houston	190	189	27	581	499	4	0	0	0	0	0	0	3	3	0	0	0	0
Honolulu [2 3]	171	171	73	51	51	0	0	0	0	0	0	0	0	0	0	0	0	0
Jacksonville [2]	150	150	94	157	157	48	0	0	0	0	0	0	10	10	3	1	1	0
Key West [2]	1,190	1,190	304	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Miami [2]	908	908	261	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Mobile [2]	339	339	185	397	387	61	1	1	1	0	0	0	5	5	4	12	12	0
Newport News [5 2]	66	38	38	450	121	115	0	0	0	0	0	0	0	0	0	0	0	0
New Orleans	1,992	1,991	1,257	139	134	77	10	10	6	0	0	0	9	9	3	2	2	1
New York	4,830	3,955	2,118	863	777	334	0	0	0	0	0	0	189	177	96	114	105	57
Norfolk [6]	401	217	93	1,150	585	194	0	0	0	0	0	0	0	0	0	17	9	0
Pascagoula [2]	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pensacola [2]	99	99	22	181	181	10	0	0	0	0	0	0	0	0	0	0	0	0
Philadelphia	1,994	913	672	1,271	835	416	0	0	0	0	0	0	32	31	23	1	1	0
Portland, Oreg.	187	187	90	397	397	208	0	0	0	0	0	0	0	0	0	0	0	0
Providence	60	21	19	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego [2]	1,195	1,195	36	62	62	0	62	62	11	0	0	0	0	0	0	0	0	0
San Francisco [2]	646	646	108	1,154	1,154	163	228	228	61	0	0	0	0	0	0	0	0	0
San Pedro [2]	2,001	2,000	104	255	254	4	84	84	30	69	69	16	1	1	0	2	2	0
Savannah [2]	120	97	57	182	77	36	0	0	0	0	0	0	3	3	1	0	0	0

[1] Detroit arrivals include 1,036 boats from Canadian ports only.
[2] Collaborators stationed at these ports.
[3] Honolulu records available to Apr. 30, 1928.
[5] Newport News records from Oct. 24, 1927.
[6] Norfolk records from Sept. 22, 1927 (date port was opened).

TABLE 3.—*Ships inspected during fiscal year 1928*—Continued

Port	From foreign ports						From Hawaii						From Porto Rico					
	Direct			Via United States ports			Direct			Via			Direct			Via		
	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband	Arrived	Inspected	With contraband
Seattle [4]	2,493	1,104	568	195	161	54	11	11	8	21	14	2	0	0	0	0	0	0
Tampa [2]	380	380	42	289	289	1	0	0	0	0	0	0	9	9	2	4	4	0
Porto Rico	1,127	1,127	426	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0
Total	23,777	19,473	8,120	10,721	7,449	2,171	400	400	120	103	94	19	307	293	153	183	164	67

[2] Collaborators stationed at these ports.
[4] Seattle arrivals include coal barges, fish boats, and tugs from Canadian ports only.

The foreign ship arrivals do not in all cases agree with customs figures. Foreign ships may put in for bunkers and be inspected by Federal Horticultural Board inspector but not entered by customs. On the other hand, boats entered at certain small outside ports are included in customs records but not in this report.

TABLE 4.—*Inspection of shipments of plants and plant products offered for entry, fiscal year 1928*

Port	Shipments inspected and entered under permit	Shipments refused entry
	Number	*Number*
Astoria	0	0
Baltimore	419	0
Boston	2,178	1
Charleston	160	0
Chicago	345	1
Detroit	148	21
Galveston	106	2
Gulfport [1]	0	0
Houston	54	0
Honolulu [1,2]	279	32
Jacksonville [1]	2	0
Key West [1]	925	5
Los Angeles [1]	25	2
Miami [1]	117	0
Mobile [1]	199	0
Newport News [1]	0	0
New Orleans	2,652	15
New York	16,886	55
Norfolk [3]	162	0
Pascagoula [1]	0	0
Pensacola [1]	4	0
Philadelphia	1,102	11
Portland, Oreg	121	1
Porto Rico	593	2
Providence	84	2
San Diego [1]	61	6
San Francisco [1]	1,335	0
San Pedro [1]	358	20
Savannah [1]	136	0
Seattle	899	2
St. Louis	29	0
Tampa [1]	475	3
Total	29,854	181

[1] Collaborators are stationed at these ports.
[2] Honolulu records available only to Apr. 30, 1928.
[3] Norfolk records from Sept. 22, 1927 (date port was opened).

CARGO INSPECTION

All cargoes of plants and plant products subject to quarantine restrictions, with the exception of special permit plant material imported under regulation 14 of quarantine 37, which was examined in Washington, D. C., or San Francisco, Calif., were inspected at the port of entry or port of first arrival. During the year a total of 30,035 shipments was inspected; 29,854 were permitted entry under permit and 181 refused entry.

In addition to the inspection referred to above, inspectors of the board supervised, at commercially operated plants, the treatment of commodities requiring disinfection as a condition of entry, as follows: Cotton, 275,478 bales (including 2,857 bales of linters), and 891 packages (including 9 packages of linters); cotton waste, 16,132 bales and 28 packages; bagging, 1,071 bales; broomcorn, 572 bales, and 362 brooms. They also supervised, at Federal and commercial plants, the disinfection of 283 samples of cotton, cotton waste, and linters which arrived by parcel post at approved ports other than Washington.

All shipments of European chestnuts found to be infested with living insects were given the hot-water treatment as a condition of entry. This treatment was also given to 24,643,420 narcissus bulbs entered under special permit.

In addition, considerable time was devoted to the supervision of the cleaning by importers of products contaminated with objectionable material, such as soil, and the inspection of miscellaneous cargoes, where examination

was necessary to establish the true status of the shipment.

Inspectors at the ports of New Orleans, Houston, and Galveston are frequently called upon to make inspections of ships' holds and storage space on the docks for the presence of insects injurious to flour. At New Orleans 196 ship and 200 dock inspections were made during the year; at Houston 14 ships' holds and at Galveston 88 ships' holds were inspected.

INSPECTION OF SPECIAL PERMIT AND DEPARTMENTAL IMPORTATIONS

With the exception of a few shipments which are inspected at San Francisco, all plant material entered under special permit is examined at the inspection house in Washington. A tabular record of such material is given on pages 17–20. In addition, all departmental importations and distributions from Washington are inspected there, as well as shipments of domestic plants entering and leaving the District, etc. A summary of the inspection work performed at the inspection house for the year under review is given in Table 5.

TABLE 5.—*Summary of plants and plant products offered for inspection in the District of Columbia, fiscal year 1928*

Material inspected	Foreign	Domestic	Fumigated	Otherwise treated	Infested with insects	Infected with diseases
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Lots of seed (departmental)	2,956	2,682	3,887	633	174	56
Number of plants, bulbs, roots, rhizomes, etc. (departmental)	23,883	115,023	9,403	9,749	[1] 512	[1] 149
Shipments of plants under regulation 14, quarantine 37 (commercial)	1,185	----------	129	65	147	317
Shipments of plants under regulations 3 and 15, quarantine 37 (commercial)	798	----------	3,590	23	19	6
Containers of domestic plants, other than departmental (mail, express, and freight)	----------	11,161	----------	----------	----------	----------
Shipments of plants for distribution by U. S. Botanic Garden	----------	4,521	----------	----------	----------	----------
Shipments of plants by private individuals	----------	260	----------	----------	----------	----------
Interceptions of plants and plant products referred to Washington	810	----------	351	192	51	9
Cotton samples referred to Washington	16,384	----------	16,384	----------	----------	----------

[1] Lots.

TABLE 6.—*Inspection of foreign parcel post packages, fiscal year 1928*

Port	Inspected	Refused entry (entire or part)	Diverted to Washington, D. C.
	Number	*Number*	*Number*
Astoria	2	0	0
Baltimore	32	14	17
Boston	1,597	124	1,277
Chicago	1,084	417	94
Detroit	2,666	232	181
Jacksonville [1]	86	32	6
Los Angeles [1]	4,290	257	166
Miami [1]	27	25	0
Mobile [1]	15	6	1
New York	2,966	405	1,203
New Orleans	21	10	11
Philadelphia	2,750	326	286
Portland, Oreg	45	7	16
Porto Rico	32	11	0
San Diego [1]	42	2	2
San Francisco [1]	1,528	209	42
St. Louis	133	30	45
Seattle	208	116	10
Total	17,524	2,223	3,357

[1] Collaborators are stationed at these ports.

The above figures do not include 66,294 packages of shamrocks, approximately 50,000 packages of which arrived at New York, 9,888 packages at Chicago, and 6,406 packages at Boston.

FOREIGN PARCEL-POST INSPECTION

This service is performed in cooperation with customs and post-office officials. All mail packages from foreign countries which upon examination or external evidence are found to contain plants or plant products are referred to an inspector of the board for examination. Such mail packages arriving at ports where there are no representatives of the board are dispatched to the nearest port at which inspectors are stationed. Table 6 indicates the number and disposition of foreign packages containing plants and plant products which were inspected during the year.

INSPECTION IN PORTO RICO AND HAWAII

The responsibility for inspecting foreign vessels and plants and plant products arriving at Porto Rican ports was assumed by representatives of the board on July 1, 1927. In this work, the representatives of the board have been materially aided by inspectors of the insular department of agriculture. In

addition to this work, the inspectors of this board stationed in Porto Rico are charged with the enforcement of quarantine 58, fruit and vegetable quarantine of Porto Rico, which governs the movement of these products from that island to the mainland. All fruits and vegetables moving to the mainland were inspected and certified, such inspection having been made in the fields, groves, and packing houses. During the year 5,303 shipments, representing 1,955,147 containers, of various fruits and vegetables were inspected and certified.

Provision was also made at the beginning of the fiscal year for the inspection in Porto Rico of parcel-post packages destined for points on the mainland, the object being to intercept, prior to shipment, packages which might contain fruits and vegetables infested with living injurious insects, including fruit flies. During the period August 1, 1927, to June 30, 1928, a total of 2,793 packages was inspected. Of this number, 243 were found to contain prohibited plants and plant products and were returned to the senders.

During the year an airplane service was established between Porto Rico, Cuba, Haiti, and the Dominican Republic. Baggage, etc., in the possession of passengers arriving on 77 airplanes were inspected in cooperation with customs officials, and 12 of the airplanes were found to carry contraband material.

The bulk of the quarantine work in Hawaii relates to the enforcement of quarantine 13 on account of the Mediterranean fruit fly and melon fly. Some work, however, is necessary in connection with the enforcement of quarantine 60, which prohibits the movement of plants bearing soil from Hawaii to the mainland. The inspection work under quarantine 13 consists of inspections of fruits and vegetables at packing houses, inspections of plantations to insure their freedom from infestation by the Mediterranean fruit fly, and the supervision of packing material used in shipments of fruits allowed entry into the mainland under regulation. A summary of these inspections is shown in Table 7.

TABLE 7.—*Fruits and vegetables inspected and certified for shipment from Hawaii to the mainland, fiscal year 1928*

Month	Bananas[1]	Pineapples	Taro	Coconuts	Ginger root	Lily root	Cassava	Certificates issued
July	12,332	771	215	30	24	172	0	138
August	16,795	633	547	12	115	224	0	176
September	15,540	1,024	563	100	87	402	0	178
October	19,727	1,065	834	44	39	248	1	173
November	28,111	1,228	906	120	142	303	0	194
December	19,883	1,421	564	116	141	356	0	118
January	18,431	955	209	182	147	315	0	118
February	16,726	866	449	222	81	199	0	161
March	14,306	699	286	137	289	352	0	184
April	11,389	363	115	58	131	244	0	118
May	14,817	1,312	30	170	99	177	0	163
June	12,627	891	16	109	11	215	1	172
Total	200,684	11,228	4,734	1,300	1,306	3,207	2	1,893

[1] Bananas by bunches, remainder by containers.

To expedite the release of baggage arriving on the mainland from Hawaii, arrangements have been made to provide, upon request of passengers, inspection and sealing of such baggage in Hawaii prior to sailing. If upon arrival at the mainland port of entry the seal is found intact, no further inspection is required.

As in previous years, the inspection work in Hawaii was performed by representatives of the Bureau of Entomology in cooperation with the board.

INSPECTION OF PLANT INTRODUCTION AND PROPAGATING GARDENS

The practice of inspecting and certifying plants for distribution by the Bureau of Plant Industry from its field introduction and propagating gardens was continued as in the past. With the exception of the plants distributed from Mandan, N. Dak., and Chico, Calif., these inspections were made by the inspectors of the board. The inspections at Mandan and Chico were performed by State officials serv-

ing as collaborators of the board, effecting a considerable saving in the form of transportation. Table 8 indicates the number of plants inspected and certified for distribution.

TABLE 8.—*Summary of plants, bud sticks, cuttings, tubers, and roots examined for distribution from plant introduction and propagating gardens, fiscal year 1928*

Station	Plants	Bud sticks, cuttings, tubers, and roots
	Number	*Number*
Bell, Md	22,584	281
Chapman Field, Fla	1,983	592
Chico, Calif	15,090	10,288
Mandan, N. Dak	322,165	
Savannah, Ga	10,332	175
Total	372,154	11,336

PESTS INTERCEPTED

During the fiscal year the inspectors and collaborators of the board collected on or in imported plants and plant products 579 recognized species and 515 insects which could be assigned to family or genera only. These interceptions included many pests known to be injurious to agriculture. The West Indian fruit fly was taken in grape from Peru and in mangoes from Cuba, Haiti, and Jamaica. The Mexican fruit worm was taken in guava, mamey, mango, orange, peach, pear, quince, and sapote from Mexico. The melon fly was found in cucumber and green beans from Hawaii; Mediterranean fruit fly in orange from Algeria, peach from Azores, avocado, coffee berry, and mango from Hawaii; locust pod, *Opuntia* sp., peach, tangerine, bitter orange, and, in the hold of a ship from Italy, loquat, mango, and *Opuntia* sp. from Madeira Islands, sour orange from Sicily, and grape and orange from Spain; the olive fruit fly in olive from Italy; and the cherry fruit fly in cherries from France. The nut fruit tortrix, *Laspeyresia splendana reaumurana*, was intercepted in chestnuts from France and Italy, and weevils, *Balaninus* spp., were found in chestnuts from China, France, Italy, Japan, Spain, and Switzerland, and in acorns from France and Turkey, filberts from Italy and Spain, and walnuts from Italy.

The pink bollworm infested cottonseeds from Dominican Republic, Egypt, Syria, and India, and cotton bolls and raw cotton from Hawaii. *Chilo simplex* was taken in rice straw from Japan and *Chilo* sp. in sugar cane from Mexico. The bean-pod borer was taken in Lima beans from Cuba and green beans from Haiti.

The West Indian sweet-potato weevil (*Euscepes batatae*) was found in sweet potatoes from Brazil, Cuba, and Porto Rico. The turnip gall weevil infested turnips from England, Belgium, Holland, Denmark, and France.

Avocado weevils, *Conotrachelus aguacatae* and *Heilipus* sp., were taken in avocados from Mexico and the Canal Zone, respectively.

The dagger moth, sorrel cutworm, white tree pierid, European tussock moth, browntail moth, and *Papilio podalirius* infested fruit stocks from France.

A total of 6,893 interceptions of insects and plant diseases was forwarded to Washington by inspectors and collaborators of the board during the fiscal year. The collaborators in California and Florida also made 2,269 interceptions of insects and 28 of diseases, and 285 insects and 195 diseases, respectively, which were identified by State authorities.

TABLE 9.—*Total number of interceptions of insects and plant diseases forwarded to Washington for identification, fiscal year 1928*

Port	Insects	Plant diseases
Astoria	57	40
Baltimore	198	81
Boston	525	118
Brownsville	29	0
Calexico	2	0
Charleston	155	115
Chicago	24	16
Del Rio	8	0
Detroit	125	28
Douglas	9	2
Eagle Pass	17	0
El Paso	79	10
Galveston	17	1
Hidalgo	29	1
Laredo	20	2
Mobile [1]	70	8
New Orleans	315	34
New York	1,134	158
Nogales	30	12
Norfolk [2]	17	3
Philadelphia	1,782	478
Portland, Oreg	15	13
San Francisco [1]	38	1
San Juan, P. R	37	5
San Pedro [1]	0	0
San Ysidro	9	0
Seattle	410	147
St. Louis	5	2
Miscellaneous	170	58
Total	5,326	1,333

[1] Collaborators are stationed at these ports.
[2] Port of Norfolk opened Sept. 22, 1927.

INTERCEPTIONS OF PROHIBITED PLANTS AND PLANT PRODUCTS

Sixteen thousand eight hundred and thirty-six interceptions of prohibited plants and plant products from 97 different foreign countries were made during the year; 11,886 of these interceptions were made in baggage, 1,979 in mail, 243 in cargo, 906 in ships' stores, 1,092 in quarters, and 729 at appraisers stores. These interceptions represent material which was actually seized and destroyed.

TABLE 10.—*Number of interceptions of contraband plants and plant products, fiscal year 1928*

Port	In baggage	In mail	In cargo	In stores	In quarters
Astoria	0	0	0	7	0
Baltimore	1	11	0	0	11
Boston	319	153	1	4	4
Charleston	4	0	0	4	4
Chicago	0	417	0	0	0
Detroit	86	267	20	0	0
Galveston	37	0	0	16	2
Gulfport [1]	0	0	0	0	0
Houston	53	0	4	5	2
Honolulu [1 2]	2,886	19	7	0	0
Jacksonville [1]	1	20	0	28	0
Key West [1]	2,623	0	0	0	0
Los Angeles [1]	0	90	2	0	0
Miami [1]	951	1	1	66	239
Mobile [1]	8	0	0	42	14
Newport News [1]	0	0	0	0	0
New Orleans	368	0	5	87	254
New York [3]	2,471	482	147	0	28
Norfolk	0	0	0	0	0
Pascagoula [1]	0	0	0	0	0
Pensacola [1]	0	0	0	22	3
Philadelphia	32	402	14	79	201
Portland, Oreg	0	13	1	0	0
Porto Rico	269	0	1	36	21
Providence	387	0	3	0	0
San Diego [1]	14	0	0	110	19
San Francisco [1]	703	29	19	259	223
San Pedro [1]	71	0	1	110	33
Savannah [1]	0	0	0	0	0
Seattle	563	55	2	4	3
St. Louis	0	20	0	0	0
Tampa [1]	39	0	15	27	31
Total	11,886	1,979	243	906	1,092

[1] Collaborators are stationed at these ports.
[2] Honolulu records available to Apr. 30, 1928.
[3] In addition 729 interceptions were made in appraisers stores.

RECORDS OF IMPORTS OF RESTRICTED PLANTS AND PLANT PRODUCTS

Under various foreign quarantines certain plants and plant products are restricted as to entry and made subject to inspection and, if necessary, disinfection for the purpose of excluding various plant diseases and insect pests. Among these restricted plants and plant products are nursery stock, plants and seeds for propagation, fruits and vegetables, grains from certain countries, broomcorn and cotton, cotton waste, cotton wrappings, and cottonseed products. The records of the importations of these articles are indicated in the following discussion and tables:

IMPORTATIONS OF NURSERY STOCK, PLANTS, AND SEEDS

The importations recorded in Tables 11, 12, 13, 14, and 15, are entered under regulation 3 of quarantine 37, under permits which are made continuing and unlimited as to the quantity that may be imported. The restrictions under this regulation are intended merely to afford opportunity to inspect, and if necessary, to safeguard the products as they are so entered. In the case of Table 11 the entries made in the preceding year also are listed for the purpose of comparison, and in Table 13 the bulb entries of the preceding eight years are brought together to show the fluctuation in the entry of different classes of bulbs.

TABLE 11.—*Importation of fruit, rose and nut stocks, cuttings, and scions under regulation 3, quarantine 37, year ended June 30, 1928*

[Figures indicate number of plants]

Kind of stocks, cuttings, and scions	Austria	Canada	Czecho-slovakia	England	France	Germany	Greece	Holland	Hungary	Ireland	Italy
Apple	30	207	174	525	4,086,800	25		2,915	21		214
Cherry		150	16	650	7,100,400			1,703	15		
Fig		16									40
Grape		8		13	940		103		715		25,400
Medlar				200							
Mulberry											25
Nut					23,300			1,415			35
Peach											50
Pear		6	24	100	1,507,500			800			
Plum			40	12	1,028,200			602	34		19
Prune			46								
Quince				30	540,900						
Rose		6		2,941,450	1,655,500			5,767,680		115,500	
Total	30	399	300	2,942,980	15,943,840	25	103	5,775,115	785	115,500	25,783

Kind of stocks, cuttings, and scions	New Zealand	Palestine	Poland	Rumania	Scotland	Sweden	Syria	Union of Socialistic Soviet Republics	Yugo-slavia	Total 1927–28	Total 1926–27
Apple	30		16	110		4		38	112	4,091,221	3,710,760
Apricot											10
Blackberry									2	2	
Cherry								16	61	7,103,017	6,874,730
Fig										56	804
Grape		21					8	66		27,274	268,368
Medlar										200	
Mulberry										25	
Nectarine											42
Nut										24,750	31,953
Olive											35
Peach										50	53
Pear			16			4		13	18	1,508,481	1,468,991
Pineapple											50
Plum			10					16	20	1,028,953	1,511,996
Pomegranate											50
Prune										46	
Quince										540,930	962,650
Rose					25,000					10,505,436	12,011,510
Total	30	21	42	110	25,000	8	8	149	213	24,830,441	26,842,052

TABLE 12.—*Importation of bulbs under regulation 3 of quarantine 37, year ended June 30, 1928*

[Figures indicate number of bulbs]

Bulbs	Africa	Bermuda	Canada	China	Denmark	England	France	Germany	Holland	Ireland	Japan	Palestine	Scotland	Switzerland	Total
Chionodoxa						1,224			437,851						439,075
Convallaria					62,000	5,010		23,403,350	1,268,420	100					24,738,880
Crocus	272					3,791			8,771,384	12		8			8,775,467
Eranthis						1,124			134,718						135,842
Fritillaria						624		10	111,144						111,778
Galanthus						2,124			660,865						662,989
Hyacinth	11					46	535,794		21,592,037						22,127,888
Ixia	12								704,632						704,644
Lily	251	1,169,076	268	73,802		9,134	510,007	19,548	434,755		17,700,424		12	200	19,917,477
Muscari						1,335			1,148,885						1,150,220
Scilla	25					1,377			1,340,077	200		6			1,341,685
Tulip						1,429	31,300	2,100	161,905,988			1			161,940,818
Total	571	1,169,076	268	73,802	62,000	27,218	1,077,101	23,425,008	198,510,756	312	17,700,424	15	12	200	242,046,763

TABLE 13.—*Summary of bulb importations, regulation 3, quarantine 37, for the years 1920–21 to 1927–28*

[Figures indicate number of bulbs]

Bulbs	1920–21	1921–22	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28
Chionodoxa [1]				339,766	465,422	839,637	466,872	439,075
Convallaria	3,606,746	14,951,170	19,603,092	17,568,835	18,980,311	20,543,785	20,558,460	24,738,880
Crocus	5,514,805	6,319,082	8,286,500	10,815,920	10,624,670	10,898,968	9,969,070	8,775,467
Eranthis [1]				93,314	152,787	214,173	144,150	135,842
Fritillaria [1]				92,951	104,483	209,543	125,688	111,778
Galanthus [1]				797,381	895,003	1,128,335	844,544	662,989
Hyacinth	22,568,891	24,808,236	29,142,797	32,197,740	27,947,261	23,682,560	23,711,178	22,127,888
Ixia [1]				335,158	371,983	545,278	529,404	704,644
Lily	22,490,533	8,219,460	9,145,630	9,690,486	11,207,559	16,031,090	16,228,762	19,917,477
Muscari [1]				612,329	906,259	1,404,573	993,339	1,150,220
Narcissus	77,956,195	77,270,548	77,193,281	92,659,666	106,314,049	142,384,199		
Scilla [1]				994,762	1,742,514	2,012,750	1,553,313	1,341,685
Tulip	55,075,343	64,846,940	76,719,116	92,539,157	96,290,452	106,849,572	129,681,036	161,940,818
Unclassified	4,756,369	70,750	183,900				11,112	
Total	191,968,882	196,486,186	220,274,316	258,737,465	276,002,753	326,744,463	204,816,928	242,046,763

[1] Imported under special permit from June 1, 1919, to Jan. 1, 1923.

TABLE 14.—*Importation of tree seeds under regulation 3, quarantine 37, year ended June 30, 1928*

[Figures indicate number of pounds]

Country of origin	Apple	Apricot	Banana	Blackberry	Cherry	Grape	Jujube	Nut and palm	Ornamental and tree	Papaya	Peach	Pear	Persimmon	Plum	Pomegranate	Quince	Rose	Miscellaneous	Total
Africa									37										37
Australia								36,075	27									1	36,103
Austria	710	10			2,938			101	14,552			65	1	631			21		19,029
Brazil								89	7										96
British Guiana								100											100
Canada									3,075										3,075
Canary Islands									38										38
Chile									415										415
China							1	193	7,249		100	145	46						7,734
Colombia								7	2										9
Cuba								749	1										750
Czechoslovakia									519										519
Denmark									560										560
France	174,475				2,397			92	3,840	3		61,385	15	117	3	5		1	242,333
Germany	352			5	1,329			21	2,653			286		100			23		4,769
Guam								84	4										88
Holland								100	538										638
India								14	19										33
Italy								55	1,667										1,722
Jamaica								14	3										17
Japan					30	5		925	13,557			1,707	125				425		15,774
Java									14										14
Manchuria												50							50
Mexico			36					44	5,513									1	5,594
New South Wales								1,320											1,320
New Zealand								206	133										339
Norway									200										200
Philippine Islands								82	1										83
Poland									136										136
Sumatra									2										2
Trinidad								537	1										538
Union of Socialistic Soviet Republics									22										22
Yugoslavia									47										47
Total	175,537	10	36	5	6,694	5	1	40,808	53,832	3	100	63,638	187	848	3	5	469	3	342,184

In addition to the seed importations shown in the preceding table, 225 packets of seeds, each containing only a small quantity, were entered as follows: Banana, France 3, Germany 1; blackberry, Germany 1; cherry, Germany 1; fig, China 1, Cuba 1, France 2, Mexico 1, New Hebrides 1; grape, France 2, Germany 1, Java 3; mangosteen, Java 2; nut and palm, Canal Zone 1, France 10, Germany 2, Honduras 1, Japan 1, Mexico 1, New Hebrides 1, Straits Settlements 2, Sweden 1, Trinidad 1; ornamental and tree, Africa 11, Australia 6, Canada 2, Canal Zone 3, Canary Islands 2, China 2, Colombia 1, Cuba 24, Czechoslovakia 1, England 11, France 53, Germany 6, Guatemala 2, Holland 4, Honduras 1, India 6, Ireland 1, Jamaica 3, Japan 6, Java 4, Mexico 5, New Hebrides 1, New Zealand 3, Philippine Islands 2, Portugal 1, Straits Settlements 3, Switzerland 1, Tahiti 1, Union of Socialistic Soviet Republics 1; papaya, Mexico 1; pear, China 2; persimmon, Germany 1; plum, Germany 1; raspberry, New Hebrides 1; rose, France 1, Germany 1; miscellaneous, Africa 1, Chile 2, Cuba 1, England 1, France 2, Java 1, New Hebrides 1. The quantity of seeds contained in these packets being very small, their distribution has not been shown in Table 15.

TABLE 15.—*Distribution by States of bulbs, nursery stock, and seeds imported under regulation 3 of quarantine 37, during year ended June 30, 1928*

State	Bulbs	Stocks, cuttings, and scions				Seeds				
		Fruit	Nut	Rose	Total	Fruit	Nut and palm	Ornamental and tree	Rose	Total
	Cases	*Number*	*Number*	*Number*		*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Alabama	364					40		356	20	416
Arizona	38	890			890					
Arkansas	126						3			3
California	7,200	124,033		41,000	165,033	744	17,769	966		19,479
Colorado	732			70,000	70,000	200	2	207		409
Connecticut	2,483	1,407,218		1,233,500	2,640,718	625	360	1,035	5	2,025
Delaware	322	20,000			20,000					
District of Columbia	735							3,726		3,726
Florida	129						1,003	120		1,123
Georgia	792	12,500			12,500	1,881	570	8,438	18	10,907
Idaho	61									
Illinois	24,191	46,510		1,186,300	1,232,810	60	48	9,010	3	9,121
Indiana	1,410	493,000		851,200	1,344,200		3	6	1	10
Iowa	1,443	2,731,600	1,000	172,500	2,905,100	200	20	659		879
Kansas	448	950,500		51,000	1,001,500	11,627	12	1,107		12,746
Kentucky	486	12,000			12,000			18		18
Louisiana	275						33	22		55
Maine	314							11		11
Maryland	1,248	230,025		30,000	260,025		3	73		76
Massachusetts	5,265	6,089		89,860	95,889	3	11	380	6	400
Michigan	4,729	254,400		101,000	355,400		5	143		148
Minnesota	2,090	357		4,500	4,857	15	30	852		897
Mississippi	138									
Missouri	2,670	1,471,864		130,500	1,602,364	4,800	12	10		4,822
Montana	171									
Nebraska	449					5	4	82	2	93
Nevada	4									
New Hampshire	176						5	176		181
New Jersey	9,058	10,070		497,000	507,070		3,185	843	50	4,078
New Mexico	32	100			100					
New York	68,151	5,062,212	20,715	3,952,180	9,035,107	222,431	15,107	9,255	210	247,003
North Carolina	293	175,000		5,000	180,000	2	1	273		276
North Dakota	82			200	200	1		89	5	95
Ohio	6,947	641,800	1,000	1,717,350	2,360,150	35	207	789	11	1,042
Oklahoma	242	88,000			88,000	100				100

TABLE 15.—*Distribution by States of bulbs, nursery stock, and seeds imported under regulation 3 of quarantine 37, during year ended June 30, 1928*—Continued

State	Bulbs	Stocks, cuttings, and scions				Seeds				
		Fruit	Nut	Rose	Total	Fruit	Nut and palm	Ornamental and tree	Rose	Total
	Cases	*Number*	*Number*	*Number*		*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Oregon	1,007	30			30	294		296		590
Pennsylvania	18,417	140,242	2,000	200,806	343,048	1,428	2,130	13,867	123	17,548
Rhode Island	1,466	18,013		57,000	75,013			167	15	182
South Carolina	255							2		2
South Dakota	72			6,000	6,000			20		20
Tennessee	1,087	180,000		15,000	195,000		50	11		61
Texas	517	143,210	35	29,000	172,245	31	63	331		425
Utah	262	30,000			30,000			3		3
Vermont	329									
Virginia	687	25,150			25,150			55		55
Washington	1,847					2,550		264		2,814
West Virginia	368	400			400		2	2		4
Wisconsin	2,542	42		64,000	64,042		2	164		166
Wyoming	26									
Exported by permittee	410	25,000		600	25,600		168	4		172
Total	172,586	14,300,255	24,756	10,505,436	24,830,441	247,072	40,808	53,832	469	342,181

In addition, 225 packets and 3 pounds of miscellaneous seeds were thus distributed.

The record of entry under special permits issued under the provisions of regulation 14 of quarantine 37 for the purpose of keeping the country supplied with new varieties and necessary propagating stock and to meet other technical and educational needs is given in Table 16.

TABLE 16.—*Special-permit importations, 1928, with combined total for the period 1920–1928*

Class of plants	Fiscal year 1928				Total, 1920–1928			
	Permits issued		Permits imported		Permits issued		Permits imported	
	Number	Quantity	Number	Quantity	Number	Quantity	Number	Quantity
Gladiolus	207	3,989,648	181	1,598,697	1,329	49,890,724	1,080	28,045,756
Dahlia	70	4,215	55	2,881	546	44,301	447	29,829
Iris, rhizomatous	170	22,616	143	8,069	1,143	254,438	960	126,679
Iris, bulbous	167	6,821,640	155	6,349,134	1,081	40,273,827	856	27,422,056
Other bulbs, rhizomes, and roots	163	845,108	147	604,207	1,145	12,036,920	886	6,076,891
Peony	111	49,282	89	24,521	960	1,349,087	757	632,810
Rose	116	20,316	87	9,460	908	194,249	754	136,948
Orchid	175	30,005	159	22,110	1,064	175,222	923	128,647
Ornamental	200	154,106	149	98,368	1,230	3,073,859	963	1,982,249
Herbaceous	142	94,630	118	54,177	1,051	4,659,916	828	2,878,323
Fruit trees and small fruits	32	4,403	20	2,616	129	14,647	82	6,661
Narcissus	281	25,917,240	226	15,869,180	688	135,340,909	441	56,374,862
Total	------	37,953,209	------	24,643,420	------	247,308,099	------	123,841,711

During the year 1,602 such permits were issued authorizing the entry of 37,953,209 plants and bulbs; a total of 24,643,420 plants and bulbs was imported under 1,357 permits as compared with a total of 46,722,087 plants and bulbs imported during 1927. Narcissus importations decreased from 40,505,682 in 1927 to 15,869,180 in 1928, while bulbous-iris importations increased from 4,174,911 to 6,349,134 during the same period. A summary of special permits issued during the entire period of the quarantine to date is given in Table 17. The number of varieties considered has now reached a total of 42,114 (an increase of nearly 5,000 during the year), of which 40,152 have been approved for entry. Table 18 shows the distribution of these varieties among the various classes of plants, as well as a comparison of the 1928 importations with those of 1927 for each class.

The distribution of the imported special-permit material by States is shown in Table 19. In addition to the foregoing there were imported from Canada under regulation 15, quarantine 37, 318,887 bulbs, plants, trees, or cuttings, as compared with 413,259 during the fiscal year 1927. The total for the fiscal year 1928 includes 4,030 plants, etc., brought in by passengers through border ports where plant-quarantine inspectors are stationed.

TABLE 17.—*Special-permit importations, yearly totals, 1920–1928*

Fiscal year	Permits issued		Permits imported	
	Number	*Quantity*	*Number*	*Quantity*
1920	311	10,752,844	171	3,484,195
1921	622	13,965,013	411	8,132,634
1922	750	9,573,199	518	3,344,026
1923	897	15,175,003	719	10,357,406
1924	1,107	15,381,621	862	12,561,306
1925	1,235	9,517,913	1,087	8,575,129
1926	1,445	80,982,954	1,200	6,021,508
1927	1,453	54,006,343	[1] 1,256	[1] 46,722,087
1928	1,602	37,953,209	1,357	24,643,420
Total	9,422	247,308,099	7,581	123,841,711

[1] Errors found in the 1927 field reports and totals reduced accordingly.

TABLE 18.—*Special-permit material: Number of different varieties of plants requested and approved for fiscal years 1920–1928, and comparison of importations for fiscal years 1927 and 1928*

Class of plants	Number of varieties of plants requested and approved, 1920–1928			Comparison of 1927 and 1928 importations	
	Requested	Approved	Percentage approved	1927	1928
Gladiolus	1,632	1,497	91.73	848,761	1,598,697
Dahlia	2,738	2,604	95.11	5,735	2,881
Iris, rhizomatous	2,361	2,252	95.38	8,625	8,069
Iris, bulbous	485	484	99.79	4,174,911	6,349,134
Other bulbs, rhizomes, and roots	2,583	2,553	98.84	889,459	604,207
Peony	1,928	1,679	87.09	24,909	24,521
Rose	3,658	3,286	89.83	16,491	9,460
Orchids	8,600	8,580	99.77	11,397	22,110
Ornamental	10,848	10,115	93.24	157,806	98,368
Herbaceous	5,719	5,560	97.22	76,296	54,177
Fruit trees and small fruits	305	293	96.07	2,015	2,616
Narcissus	1,257	1,249	99.36	[1]40,505,682	15,869,180
Total	42,114	40,152	95.34	[1]46,722,087	24,643,420

[1] Errors found in the 1927 field reports and totals reduced accordingly.

TABLE 19.—*Distribution of special-permit material by States for fiscal years 1920–1928*

State	Gladiolus	Dahlia	Rhizomatous iris	Bulbous iris	Peony	Rose	Orchid	Ornamental	Narcissus	Total
Alabama	14,988	0	0	30,980	0	174	0	198	0	46,340
Arizona	12	14	0	0	0	9	14	2,557	0	2,606
Arkansas	0	0	0	18,000	0	0	0	0	0	18,000
California	1,839,937	4,832	26,539	10,639,753	2,181	24,827	31,764	2,078,615	5,364,552	20,013,000
Colorado	18,109	0	0	33,490	150	0	1,609	5,787	0	59,145
Connecticut	[1] 14,614	1,006	1,293	22,745	113	31,508	6	151,407	[1] 2,123	224,815
Delaware	2,000	0	22	700	16	0	826	5,310	5	8,879
District of Columbia	512	140	93	215	0	320	74	318	0	1,672
Florida	47,829	0	0	[1] 267,317	0	21	28	277,999	[2] 6,258,827	6,852,021
Georgia	9,210	360	181	128,485	0	0	0	2,988	5,831	147,055
Idaho	791	0	0	2,000	0	0	0	0	0	2,791
Illinois	3,242,079	95	14,142	881,390	44,831	9,746	545	226,390	221,025	4,640,243
Indiana	2,384,752	186	2,676	502,541	4,584	2,249	171	30,128	640	2,927,927
Iowa	111,585	0	4	10,035	24,010	0	0	14,295	250	160,179
Kansas	0	99	2,082	32	2,813	0	0	475	68	5,569
Kentucky	0	408	0	51,200	0	0	415	0	0	52,023
Louisiana	2,500	116	0	21,750	0	0	978	425	363	26,132
Maine	350	0	37	0	262	0	0	902	0	1,551
Maryland	23,057	439	395	325,575	19,891	500	449	61,117	827,322	1,258,745
Massachusetts	3,436,989	1,224	3,337	487,710	6,360	2,289	21,831	[1] 436,429	6,810	4,402,979
Michigan	12,343,441	3,411	3,346	793,678	81,627	317	530	572,263	2,164,395	15,963,008
Minnesota	84,544	49	1,523	5	7,440	160	612	35,552	1,000	130,885
Mississippi	6,500	0	9	49,776	0	0	0	252	0	56,537
Missouri	3,173	183	550	281,211	991	0	4,039	19,569	1,226	310,942
Montana	0	0	0	0	0	0	0	100	0	100
Nebraska	1,132	276	0	0	14	0	0	351	0	1,773
Nevada	0	0	0	0	0	0	0	0	0	0
New Hampshire	40,049	7	13	11,523	0	0	2	1,254	0	52,848
New Jersey	115,716	4,927	10,016	1,080,669	39,136	31,774	23,429	2,549,415	461,119	4,316,201
New Mexico	0	0	0	5,000	0	0	0	0	0	5,000
New York	2,505,452	4,364	30,617	3,224,012	201,793	18,241	28,152	3,013,429	9,684,213	18,710,273
North Carolina	692,375	82	0	2,757,258	0	0	0	739	1,041,305	4,491,759
North Dakota	23,404	0	0	0	7	1	0	0	0	23,412
Ohio	482,305	1,994	19,997	46,856	124,398	4,276	420	763,239	28	1,443,513
Oklahoma	510	0	0	14,000	0	0	0	198	0	14,708
Oregon	52,187	1,392	1,408	530,558	2,651	1,295	0	54,822	1,002,170	1,646,483
Pennsylvania	370,554	1,390	2,494	176,493	51,551	5,462	11,531	252,094	1,778,659	2,650,228
Rhode Island	946	1,067	1,557	255,965	5,209	429	157	46,128	203,050	514,508

[1] Some material transferred to other States during the year.

[2] Errors found in the 1927 field reports and totals reduced accordingly.

TABLE 19.—*Distribution of special-permit material by States for fiscal years 1920–1928*—Continued

State	Gladiolus	Dahlia	Rhizomatous iris	Bulbous iris	Peony	Rose	Orchid	Ornamental	Narcissus	Total
South Carolina	0	0	0	30,000	0	0	0	3	8,869,500	8,899,503
South Dakota	472	0	11	0	2,432	1,807	0	551	0	5,273
Tennessee	0	590	367	188,896	232	87	0	3,442	737,225	930,839
Texas	2,000	1	50	693,271	0	290	6	75,398	6,139,237	6,910,253
Utah	50	0	0	28,250	0	0	0	4,747	11,100	44,147
Vermont	11,157	0	36	8,010	2,359	0	0	2,445	0	24,007
Virginia	19,681	293	3	2,337,054	1,376	0	45	44,066	4,732,340	7,134,858
Washington	84,968	618	3,381	1,373,703	3,515	646	0	159,780	6,591,229	8,217,840
West Virginia	230	0	0	4,000	0	0	0	36	0	4,266
Wisconsin	55,596	266	500	107,950	2,868	520	1,014	48,911	269,250	486,875
Wyoming	0	0	0	0	0	0	0	0	0	0
Total	28,045,756	29,829	126,679	27,422,056	632,810	136,948	128,647	10,944,124	56,374,862	123,841,711

IMPORTATIONS OF COTTON, COTTON WRAPPINGS, AND COTTON PRODUCTS

Tables 20 to 23 indicate, respectively, the importations of cotton, cotton waste, bagging, cottonseed, seed cotton, and cottonseed products during the year. The actual number of bales of cotton, cotton waste, and bagging is indicated, but inasmuch as bales vary in size, they are referred to as running bales.

In addition to the commercial importations indicated the board supervised the entry of 899 packages of cotton samples, including 9 packages of linters, imported by freight or express, 42 cotton-waste samples imported by freight or express, and 16,667 samples of cotton and cotton waste and linters imported by parcel post.

TABLE 20.—*Importation of running bales of ginned cotton, by country of growth and port of entry, 1927–28*

Country	Alburg	Boston	Buffalo	Calexico	Charleston	Detroit	El Paso	Fabens	Houston	Island Pond	Jacksonville	Malone	Newport
Algeria	----	259	----	----------	----	----	------	------	----	------	----	------	------
Anglo-Egyptian Soudan	----	144	----	----------	----	----	------	------	----	------	----	------	------
China	----	2,081	----	----------	----	----	------	------	----	------	----	------	------
Dutch East Indies	----	245	----	----------	----	----	------	------	----	------	----	------	------
Egypt	----	142,019	----	----------	----	----	------	------	----	------	----	------	------
India	----	13,512	----	----------	----	----	------	------	----	------	----	------	------
Mexico	----	----------	----	46,989	----	----	323	1,322	----	------	----	------	------
Nigeria	----	321	----	----------	----	----	------	------	----	------	----	------	------
Peru	----	1,603	----	----------	----	----	------	------	----	------	----	------	------
United States (continental)	37	9,045	83	----------	28	151	------	------	1	518	8	241	1,390
Total	37	169,229	83	46,989	28	151	323	1,322	1	518	8	241	1,390

Country	New York	Niagara Falls	Nyando	Philadelphia	Port Huron	Portland	Richford	Rouses Point	St. Albans	San Francisco	Seattle	Vanceboro	Total
Algeria	57	----	----	----	----	------	----	----	----	----------	----------	----	316
Anglo-Egyptian Soudan	----------	----	----	----	----	------	----	----	----	----------	----------	----	144
Asia Minor	10	----	----	----	----	------	----	----	----	----------	----------	----	10
Brazil	633	----	----	----	----	------	----	----	----	----------	----------	----	633
British West Indies	959	----	----	----	----	------	----	----	----	----------	----------	----	959
China	4,187	----	----	----	----	1,933	----	----	----	36,305	19,662	----	64,168
Colombia	2,849	----	----	----	----	------	----	----	----	----------	----------	----	2,849
Cuba	15	----	----	----	----	------	----	----	----	----------	----------	----	15
Dominican Republic	162	----	----	----	----	------	----	----	----	----------	----------	----	162
Dutch East Indies	786	----	----	----	----	------	----	----	----	----------	----------	----	1,031
Ecuador	970	----	----	----	----	------	----	----	----	----------	----------	----	970
Egypt	12,140	----	----	----	----	------	----	----	----	----------	----------	----	154,159
Haiti	3,306	----	----	----	----	------	----	----	----	----------	----------	----	3,306
India	17,113	----	----	----	----	25	----	----	----	1,618	125	----	32,393
Japan	----------	----	----	----	----	200	----	----	----	----------	----------	----	200
Mexico	3,954	----	----	----	----	------	----	----	----	2,193	----------	----	54,781
Nigeria	----------	----	----	----	----	------	----	----	----	----------	----------	----	321
Peru	69,281	----	----	----	----	------	----	----	----	----------	----------	----	70,884
Porto Rico	1,064	----	----	----	----	------	----	----	----	----------	----------	----	1,064
United States (continental)	62	383	1	120	4	------	447	60	569	1,700	----------	739	15,587
Virgin Islands (United States)	26	----	----	----	----	------	----	----	----	----------	----------	----	26
Total	117,574	383	1	120	4	2,158	447	60	569	41,816	19,787	739	[1]403,978

[1] Includes 7,274 bales of linters.

TABLE 21.—*Importation of running bales of cotton waste, by country of origin and port of entry, 1927–28*

Country	Baltimore	Boston	Buffalo	Charleston	Detroit	El Paso	Galveston	Holeb	Island Pond	New Orleans	Newport	New York
Austria												465
Belgium		120										2,942
Brazil		90										
Canada		1,407			49			38	277		846	60
Ceylon		25										
China												185
England	77	5,272		2,608								2,144
France		1,555		106			26			7		1,379
Germany	811	2,384								31		3,018
Holland		950		295			186					2,050
India		12										4,772
Italy		369										215
Japan		1,415										1,205
Mexico						28						1,623
Scotland												83
Spain												658
Switzerland		1,086										408
United States (returned)			3	4								
Total	888	14,685	3	3,013	49	28	212	38	277	38	846	21,207

Country	Niagara Falls	Norfolk	Philadelphia	Port Huron	Portland	Richford	Rouses Point	St. Albans	San Francisco	Seattle	Total
Austria											465
Belgium			27								3,089
Brazil											90
Canada	92			127		106	2	402			3,406
Ceylon			446								471
China			25		25				252	323	810
Czechoslovakia			3								3
England		15	1,784								11,900
France			764								3,837
Germany			1,658						191		8,093
Holland			1,531								5,012
India			3,447								8,231
Italy			420								1,004
Japan			2,879						1,336	5,820	12,655
Mexico											1,651
Scotland			31								114
Spain											658
Sweden			169								169
Switzerland			246						188		1,928
United States (returned)							5				12
Total	92	15	13,430	127	25	106	7	402	1,967	6,143	63,598

TABLE 22.—*Importation of running bales of bagging, by country of origin and port of entry, 1927–28*

Country	Baltimore	Boston	Buffalo	Charleston	Chicago	Detroit	Galveston	Houston	New Orleans	Newport
Austria				67					233	
Belgium	8,502	752		662			52		6,269	
Canada					322	3,460				115
Cuba									1,386	
England	2,685	1,528	48	3,919			493	1,966	889	
France	4,160	157		450					3,545	
Germany	1,152	244		1,068			1,658	75	4,897	
Holland	2,848	168		168				20	2,755	
India		4,437								
Italy	224								602	
Nicaragua									15	
Scotland	514	346		126						
Spain									1,649	
Wales	112									
Total	20,197	7,632	48	6,460	322	3,460	2,203	2,061	22,240	115

Country	New York	Norfolk	Philadelphia	Port Huron	Richford	San Francisco	Savannah	Seattle	Total
Algeria	711		414						1,125
Argentina	34								34
Australia	6								6
Austria	1,828	835					521		3,484
Belgium	9,023	4,208	783				947		31,198
Canada	5,119		58	3,472	49			485	13,080
China						761		448	1,209
Cuba	35								1,421
Denmark	916								916
Egypt	408								408
England	8,435	11,799	7,229				2,488		41,479
France	12,643	1,647	1,391				475		24,468
Germany	6,504	8,459	249				3,340		27,646
Greece	91		9						100
Holland	7,290	5,959	415				278		19,901
India	115		4						4,556
Ireland	288								288
Italy	7,365		104						8,295
Japan	185	200	201			1,636		12,711	14,933
Malta	86								86
New Zealand	10								10
Nicaragua									15
Norway	753								753
Russia	543								543
Scotland	2,686		187				137		3,996
Spain	2,624		5						4,278
Wales	139								251
Total	67,837	33,107	11,049	3,472	49	2,397	8,186	13,644	204,479

TABLE 23.—*Importation, in tons, of cottonseed, seed cotton, and cottonseed hulls, cake, and meal, 1927–28*

Port	Cotton-seed	Seed cotton	Cotton-seed hulls	Cotton-seed cake	Cotton-seed meal
Boston				42	261
Calexico	30		321		
Eagle Pass				307	
El Paso				210	361
New York					25
San Francisco					50
Tacoma					50
Yuma		40			
Total	[1] 30	[1] 40	[1] 321	559	747

[1] Entry of cottonseed, seed cotton, and cottonseed hulls grown in the Imperial Valley, Lower California, Mexico, is allowed under permit.

IMPORTATIONS OF FRUITS AND VEGETABLES

The two following tables indicate the fruits and vegetables imported under permit and inspection during the fiscal year, Table 24 by countries of origin and Table 25 by ports of entry.

TABLE 24.—*Fruits and vegetables imported during year ended June 30, 1928, by countries of origin*

[Quarantine 56 unless otherwise designated]

Kind	Country and quantity	Total
Apple.....pounds..	Chile, 85; Germany, 83; Holland, 20; Japan, 80.....	268
Apricot.....do....	Argentina, 588.....	588
Aralia cordata.....do....	China, 1,300.....	1,300
Artichoke.....do....	Mexico, 221.....	221
Asparagus.....do....	Argentina, 12,756.....	12,756
Avocado.....do....	Cuba, 2,169,281; Dominica, British West Indies, 7,400; Dominican Republic, 23,923; Jamaica, 18,470; Mexico (seeds removed), 104,049; Peru, 550; St. Lucia, British West Indies, 6,620.	2,330,293
Banana.....bunches..	Brazil, 11; Colombia, 1,817,650; Costa Rica, 5,235,342; Cuba, 2,756,947; Dominican Republic, 330; Guadeloupe, French West Indies, 7,071; Guatemala, 6,968,134; Haiti, 110; Honduras, 19,985,088; British Honduras, 115,765; Jamaica, 12,959,228; Mexico, 5,734,880; Nicaragua, 3,063,489; Panama (including Canal Zone), 4,540,766; St. Lucia, British West Indies, 100.	63,184,911
Bean (green):		
Lima.....pounds..	Cuba, 2,729,473; Mexico, 48,745.....	2,778,218
String.....do....	Cuba, 25,875; Mexico, 888,076.....	913,951
Beet.....do....	Bermuda, 552,149; Cuba, 200; Mexico, 311,732.....	864,081
Berry (Rubus).....do....	Norway, 4,116.....	4,116
Cabbage.....do....	Bermuda, 46; Channel Islands, 400; Cuba, 20,080; Holland, 40,000; Mexico, 34,234.	94,760
Cacao bean pod.....do....	Costa Rica, 1,810; Jamaica, 20; Trinidad, British West Indies, 140.	1,970
Carrot.....do....	Bermuda, 1,373,525; Mexico, 652,219.....	2,025,744
Cassava.....do....	China, 300; Costa Rica, 60; Cuba, 161,056; Dominican Republic, 367.	161,783
Cauliflower.....do....	Bermuda, 7; Mexico, 2,760.....	2,767
Celery.....do....	Bermuda, 2,665,264; Mexico, 2,171.....	2,667,435
Chayote.....do....	Cuba, 31,305; Dominican Republic, 4,811; Jamaica, 50; Mexico, 3,648.	39,814
Cherry:		
Fresh.....do....	Argentina, 93,100; Chile, 7,200.....	100,300
Processed.....do....	Chile, 80,942; Italy, 1,377,029; Rumania, 170,717; Turkey, 14,710; Yugoslavia, 172,859.	1,816,257
Cipollino.....do....	Italy, 2,563,254; Morocco, 1,221,330; Spain, 2,182.....	3,786,766
Citrus medica.....do....	Greece, 668; Italy, 3,145; Palestine, 20,206.....	24,019
Clover top.....do....	Mexico, 634.....	634
Crosnes.....do....	Belgium, 4,917.....	4,917
Cucumber.....do....	Bermuda, 515; Cuba, 1,030,083; Mexico, 216,511.....	1,247,109
Dasheen (includes colocasia, caladium, inhame, malanga, and taro), pounds.	Azores, 492,601; China, 589,287; Costa Rica, 180; Cuba, 150,126; Dominican Republic, 839,350; Japan, 341,976; Mexico, 3,583; St. Lucia, British West Indies, 2,970.	2,420,073
Eggplant.....pounds..	Cuba, 6,216,434; Mexico, 795,929; Virgin Islands, 48,564.....	7,060,927
Endive.....do....	Belgium, 2,390,967.....	2,390,967
Fennel.....do....	Bermuda, 4,748.....	4,748
Garlic.....do....	Azores, 198; Chile, 752,416; Cuba, 5,160; Egypt, 63,510; Germany, 55,179; Holland, 21,827; Hungary, 92,650; Italy, 1,154,596; Mexico, 550,436; Spain, 2,750; Switzerland, 33,318.	2,732,040
Ginger (crude).....do....	China, 426,609; Cuba, 1,255; Dominican Republic, 1,015; Jamaica, 270; Japan, 1,112; West Africa (Gold Coast), 340.	430,601
Grapefruit.....do....	Cuba, 3,457,891; Dominican Republic, 8; Haiti, 88; Jamaica, 22,530.	3,480,517
Grape:		
Fresh (not hothouse).do....	Argentina, 3,748,844; Chile, 381,300; Mexico, 1,515.....	4,131,659
Hothouse.....do....	Belgium, 356,649.....	356,649
Processed.....do....	Italy, 284,438.....	284,438
Waste.....do....	Italy, 13,037.....	13,037
Horse-radish.....do....	Germany, 690,013.....	690,013
Husk tomato.....do....	Mexico, 58,884.....	58,884
Jicame.....do....	Mexico, 23,041.....	23,041
Kale.....do....	Bermuda, 675,923.....	675,923
Kohl-rabi.....do....	Bermuda, 1,041; Mexico, 106.....	1,147
Kudzu.....do....	China, 129,483.....	129,483
Leek.....do....	Cuba, 515.....	515
Lemon.....crates..	Argentina, 20; Azores, 2; Cuba, 1; Italy, 1,220,589; Mexico, 31; Spain, 277.	1,220,920
Lettuce.....pounds..	Bermuda, 41,091; Mexico, 70,034.....	111,125
Lily bulb (edible).....do....	China, 27,063.....	27,063

TABLE 24.—*Fruits and vegetables imported during year ended June 30, 1928, by countries of origin*—Continued

[Quarantine 56 unless otherwise designated]

Kind	Country and quantity	Total
Lime (sour)---pounds	Bermuda, 875; Costa Rica, 5,000; Cuba, 7,025; Dominica, British West Indies, 3,104,275; Dominican Republic, 38,623; Haiti, 214; British Honduras, 2,100; Jamaica, 179,530; Mexico, 1,371,386; Panama, 1,500; St. Lucia, British West Indies, 195,080; Trinidad, British West Indies, 8,292.	4,913,900
Melon---do	Argentina, 1,325,011; Chile, 1,904,137; Italy, 8,663; Mexico, 4,524,960; Spain, 445,084.	8,207,855
Mint---do	Bermuda, 3,160; Mexico, 461	3,621
Mustard---do	Bermuda, 4,080; Mexico, 52,526	56,606
Nectarine---do	Belgium, 935; Chile, 32,460	33,395
Nuts (in the shell):		
Acorn---do	Greece, 2,141,804; Italy, 1,693,081; Turkey, 4,229,915	8,064,800
Chestnut---do	France, 37,919; Italy, 10,988,341; Spain, 26,262	11,052,522
Okra---do	Cuba, 1,344,676; Mexico, 4,469	1,349,145
Onion---do	Argentina, 110,500; Australia, 137,821; Azores, 323; Bermuda, 135,335; Chile, 12,045,677; China, 170; Cuba, 75,463; Dominica, British West Indies, 3,300; Egypt, 22,793,494; France, 60,000; Holland, 182,710; Italy, 1,079,654; Japan, 155,000; Mexico, 369,610; Montserrat, British West Indies, 24,500; Morocco (French), 8,590; Peru, 5,000; Spain, 43,110,121; Sweden, 22; Virgin Islands, 4,200.	80,301,490
Orange:		
Under quarantine 56, pounds.	Argentina, 66; Cuba, 65,295; Dominican Republic, 512; Haiti, 205; Jamaica, 24,500.	90,578
Mandarin (quarantine 28), pounds.	Japan, 1,410,390	1,410,390
Pachyrhizus---pounds	China, 41,700	41,700
Parsley---do	Bermuda, 1,592,614; Mexico, 28,325	1,620,939
Pea---do	Bermuda, 33; Cuba, 1,050; Jamaica, 1,025; Mexico, 14,440,607	14,442,715
Peach---do	Argentina, 76,000; Belgium, 945; Chile, 26,050	102,995
Pear---do	Argentina, 20,000; Chile, 31,870	51,870
Pepper---do	Bahamas, 5,680; Cuba, 6,007,932; Dominican Republic, 580; Mexico, 10,601,724; Virgin Islands, 14,634.	16,630,550
Pigeon pea---do	Dominican Republic, 93	93
Pigweed---do	Mexico, 435	435
Pineapple---crates	Azores, 17; Costa Rica, 18,605; Cuba, 1,051,991; Dominican Republic, 5; Ecuador, 3; Haiti, 3,725; Honduras, 597; Mexico, 626; St. Lucia, British West Indies, 2; Venezuela, 6.	1,075,577
Plantain---bunches	Costa Rica, 200; Cuba, 359,954; Dominican Republic, 16,349; Haiti, 21; Honduras, 88,879; British Honduras, 29,498; Mexico, 5,536; Panama (including Canal Zone), 28,631.	529,068
Plums---pounds	Argentina, 38,194	38,194
Potato:		
Under quarantine 56, pounds.	Bermuda, 6,462,549	6,462,549
Under potato regulations (Order of Dec. 22, 1913) pounds.	Cuba, 4,225,795; Mexico, 812,041	5,037,836
Prickly pear---pounds	Mexico, 11,167	11,167
Pumpkin---do	Cuba, 48,577; Dominican Republic, 14,131; Jamaica, 1,240; Mexico, 12,136.	76,084
Purslane---do	Mexico, 1,580	1,580
Radish---do	Mexico, 81,332	81,332
Roselle---do	Mexico, 260	260
Sage---do	Mexico, 160	160
Sea onion---do	Denmark, 2,713; Italy, 73	2,786
Sorrel---do	Bermuda, 1,570	1,570
Spinach---do	Bermuda, 755; Mexico, 139,274	140,029
Squash---do	Cuba, 317,162; Mexico, 184,091	501,253
Strawberry---do	Mexico, 1,466	1,466
Swiss chard---do	Mexico, 7,990	7,990
Tamarind bean pod---do	Antigua, British West Indies, 14,925; Barbados, British West Indies, 500; Dominican Republic, 56; Mexico, 618; St. Kitts, British West Indies, 11,636.	27,735
Tangerine---do	Cuba, 29,155	29,155
Tomato---do	Bahamas, 9,134,163; Cuba, 19,815,221; Mexico, 91,677,490; Virgin Islands, 29,100.	120,655,974
Turnip---do	Bermuda, 48,354; Mexico, 317,442	365,796
Vaccinium (cranberry, etc.), pounds.	Newfoundland, 551,078; Norway, 3,575; Sweden, 2,487	557,140
Water chestnut---pounds	China, 1,370,283; Japan, 400	1,370,683
Water cress---do	Mexico, 3,715	3,715
Water-lily root---do	China, 48,371; Cuba, 200; Japan, 900	49,471
Watermelon---do	Chile, 11,395; Mexico, 1,264,226; Peru, 725	1,276,346

TABLE 25.—*Fruits and vegetables imported during year ended June 30, 1928, by ports of entry*

[Quarantine 56 unless otherwise designated]

Kind	Port and quantity	Total
Apple---pounds	New York, 188; Seattle, 80	268
Apricot---do	New York, 588	588
Aralia cordata---do	San Francisco, 1,300	1,300
Artichoke---do	Laredo, 221	221
Asparagus---do	New York, 12,756	12,756
Avocado---do	Brownsville (seeds removed), 491; Eagle Pass (seeds removed), 4,079; El Paso (seeds removed), 20,178; Hidalgo (seeds removed), 20; Key West, 523,438; Laredo (seeds removed), 79,226; Miami, 37,000; New Orleans, 794,313; New York, 557,968; Nogales (seeds removed), 55; Tampa, 313,525.	2,330,293
Banana---bunches	Baltimore, 3,133,051; Boston, 3,521,972; Charleston, 1,049,356; Corpus Christi, 4,961; Douglas, 30; Eagle Pass, 13,102; El Paso, 330,740; Galveston, 1,000,262; Houston, 7,151; Key West, 13,579; Laredo, 43,169; Los Angeles, 949,399; Miami, 239,116; Mobile, 3,182,801; New Orleans, 23,537,346; New York, 18,601,480; Nogales, 551,569; Pensacola, 34,885; Philadelphia, 5,034,258; San Francisco, 1,190,089; Tampa, 746,595.	63,184,911
Bean (green):		
Lima---pounds	Laredo, 2,729; New York, 2,729,473; Nogales, 23,307; San Diego, 5,842; San Ysidro, 16,867.	2,778,218
String---do	Brownsville, 69,744; Calexico, 58; Douglas, 4,382; Eagle Pass, 2,450; El Paso, 135,792; Laredo, 453,979; Los Angeles, 1,804; New York, 25,875; Nogales, 70,026; San Diego, 14,630; San Ysidro, 135,211.	913,951
Beet---do	Calexico, 90; Douglas, 14,529; Eagle Pass, 645; El Paso, 284,321; New York, 552,349; Nogales, 12,147.	864,081
Berry (Rubus)---do	New York, 4,116	4,116
Cabbage---do	Boston, 10,000; Calexico, 1,824; Douglas, 11,857; Eagle Pass, 1,162; El Paso, 2,550; Laredo, 4,145; New York, 20,526; Nogales, 12,451; Norfolk, 10,000; Philadelphia, 20,000; San Ysidro, 245.	94,760
Cacao bean pod---do	New York, 1,970	1,970
Carrot---do	Calexico, 804; Douglas, 26,177; Eagle Pass, 548; El Paso, 616,777; Laredo, 90; New York, 1,373,525; Nogales, 7,823.	2,025,744
Cassava---do	Chicago, 300; Key West, 20,781; New York, 129,157; Tampa, 11,545.	161,783
Cauliflower---do	Douglas, 246; Eagle Pass, 65; Laredo, 390; New York, 7; Nogales, 2,059.	2,767
Celery---do	Douglas, 1,953; Laredo, 40; New York, 2,665,264; Nogales, 178	2,667,435
Chayote---do	Boston, 50; El Paso, 3,233; Key West, 1,395; Laredo, 385; New Orleans, 10,165; New York, 23,861; Nogales, 30; Tampa, 695.	39,814
Cherry:		
Fresh---do	New York, 100,300	100,300
Processed---do	Boston, 5,513; New York, 1,768,548; Philadelphia, 42,196	1,816,257
Cipollino---do	Boston, 147,228; New York, 3,639,538	3,786,766
Citrus medica---do	Detroit, 3,600; New York, 20,419	24,019
Clover top---do	Douglas, 615; Nogales, 19	634
Crosnes---do	New York, 4,917	4,917
Cucumber---do	Brownsville, 585; Calexico, 50; Douglas, 3,027; Eagle Pass, 965; El Paso, 635; Key West, 270; Laredo, 6,412; New Orleans, 3,060; New York, 1,026,118; Nogales, 204,837; Tampa, 1,150.	1,247,109
Dasheen (includes colocasia, caladium, inhame, malanga, and taro), pounds.	Boston, 23,754; Calexico, 3,583; Chicago, 4,700; Detroit, 1,900; Key West, 34,875; Los Angeles, 35,902; New York, 995,017; Portland, 9,500; Providence, 492,601; San Francisco, 579,624; Seattle, 171,397; Tampa, 67,220.	2,420,073
Eggplant---pounds	Douglas, 411; Key West, 29,835; Laredo, 50; Los Angeles, 18,750; New Orleans, 666,015; New York, 5,556,668; Nogales, 776,718; Tampa, 12,480.	7,060,927
Endive---do	New York, 2,390,967	2,390,967
Fennel---do	New York, 4,748	4,748
Garlic---do	Boston, 179,677; Calexico, 472; Douglas, 10,183; Eagle Pass, 1,791; El Paso, 20,302; Laredo, 428,319; New Orleans, 171,695; New York, 1,900,508; Nogales, 8,368; Philadelphia, 10,527; Providence, 198.	2,732,040
Ginger (crude)---do	Boston, 9,770; Chicago, 2,200; Detroit, 500; Los Angeles, 9,200; New Orleans, 45; New York, 89,595; Portland, 900; San Francisco, 276,640; Seattle, 41,751.	430,601
Grapefruit---do	Boston, 30,520; Chicago, 1,455,603; New York, 1,244,234; St. Louis, 750,160.	3,480,517
Grape:		
Fresh (not hothouse)---do	Eagle Pass, 774; El Paso, 60; Laredo, 670; New York, 4,130,144; Nogales, 11.	4,131,659
Hothouse---do	New York, 356,649	356,649
Processed---do	New York, 284,438	284,438
Waste---do	New York, 13,037	13,037
Horse-radish---do	Baltimore, 3,000; New York, 657,485; Philadelphia, 29,528	690,013
Husk tomato---do	Brownsville, 2,257; Eagle Pass, 1,200; El Paso, 52,879; Hidalgo, 2,548.	58,884
Jicame---do	El Paso, 23,041	23,041

TABLE 25.—*Fruits and vegetables imported during year ended June 30, 1928, by ports of entry*—Continued

Kind	Port and quantity	Total
Kale.....pounds..	New York, 675,923	675,923
Kohl-rabi.....do....	New York, 1,041; Douglas, 106	1,147
Kudzu.....do....	Boston, 4,324; Detroit, 200; Los Angeles, 10,500; New York, 31,580; Portland, 2,600; San Francisco, 60,584; Seattle, 19,695.	129,483
Leek.....do....	New York, 515	515
Lemon.....crates..	Boston, 7,976; Brownsville, 1; Detroit, 75; Eagle Pass, 1; El Paso, 25; New Orleans, 137,299; New York, 1,073,821; Philadelphia, 991; Port Huron, 729; Providence, 2.	1,220,920
Lettuce.....pounds..	Calexico 40; Douglas, 21,012; Eagle Pass, 1,749; El Paso, 26,664; New York, 41,091; Nogales, 20,569.	111,125
Lily bulb (edible).....do....	Boston, 2,984; Chicago, 1,400; Detroit, 200; New York, 7,620; San Francisco, 9,368; Seattle, 5,491.	27,063
Lime (sour).....do....	Boston, 5,010; Brownsville, 7,879; Eagle Pass, 121,320; El Paso, 59,695; Laredo, 1,040,905; Los Angeles, 103,205; Mobile, 17,100; New Orleans, 93,876; New York, 3,440,679; Nogales, 13,276; San Francisco, 3,940; Tampa, 7,015.	4,913,900
Melon.....do....	Boston, 1,543; Calexico, 50,062; Douglas, 85; El Paso, 1,180; Laredo, 320; New York, 3,681,352; Nogales, 4,473,313.	8,207,855
Mint.....do....	Calexico, 88; Douglas, 84; El Paso, 289; New York, 3,160	3,621
Mustard.....do....	Calexico, 8,538; Douglas, 11,026, Eagle Pass, 12; El Paso, 23,455; New York, 4,080; Nogales, 9,492; San Ysidro, 3.	56,606
Nectarine.....do....	New York, 33,395	33,395
Nuts (in the shell):		
Acorn.....do....	New York, 8,064,800	8,064,800
Chestnut.....do....	Boston, 705,329; Los Angeles, 55,000; New York, 10,289,853; Philadelphia, 2,340.	11,052,522
Okra.....do....	Key West, 26,340; New Orleans, 749,229; New York, 550,092; Nogales, 449; Tampa, 23,035.	1,349,145
Onion.....do....	Boston, 8,596,623; Brownsville, 1,205; Calexico, 1,319; Douglas, 42,156; Eagle Pass, 925; El Paso, 257,032; Key West, 3,620; Laredo, 31,380; New Orleans, 3,582; New York, 71,033,663; Nogales, 20,948; Philadelphia, 11,023; Providence, 323; San Francisco, 170; San Ysidro, 4,700; Seattle, 292,821.	80,301,490
Orange:		
Under quarantine 56..do....	Boston, 11,340; Chicago, 61,600; New York, 17,638	90,578
Mandarin (quarantine 28), pounds.	Seattle, 1,410,390	1,410,390
Pachyrhizus.....pounds..	San Francisco, 41,700	41,700
Parsley.....do....	Douglas, 1,866; Eagle Pass, 164; El Paso, 26,118; New York, 1,592,614; Nogales. 177.	1,620,939
Pea.....do....	Calexico, 2,150; Douglas, 636; Eagle Pass, 100; El Paso, 2,685; Laredo, 844; Los Angeles, 4,941; New York, 2,108; Nogales, 14,234,104; San Diego, 40,179; San Ysidro, 154,968.	14,442,715
Peach.....do....	New York, 102,995	102,995
Pear.....do....	New York, 51,870	51,870
Pepper.....do....	Brownsville, 4,776; Calexico, 458; Del Rio, 10,551; Douglas, 22,574; Eagle Pass, 93,297; El Paso, 554,206; Hidalgo, 3,701; Key West, 55,702; Laredo, 176,968; Los Angeles, 6,132; Miami, 2,240; New Orleans, 541,020; New York, 5,426,314; Nogales, 9,729,031; San Francisco, 30; Tampa, 3,550.	16,630,550
Pigeon pea.....do....	New York, 93	93
Pigweed.....do....	Douglas, 317; Nogales, 118	435
Pineapple.....crates..	Boston, 100; Brownsville, 2; Eagle Pass, 3; El Paso, 318; Key West, 791,401; Laredo, 92; Los Angeles, 10; Miami, 184; New Orleans, 23,668; New York, 248,709; Nogales, 200; Providence, 17; San Francisco, 780; Tampa, 10,093.	1,075,577
Plantain.....bunches..	Boston, 2,418; Key West, 95,314; Miami, 26,375; Mobile, 3,404; New Orleans, 56,030; New York, 83,583; Nogales, 1; Philadelphia, 60,000; San Francisco, 100; Tampa, 201,843.	529,068
Plum.....pounds..	New York, 38,194	38,194
Potato:		
Under quarantine 56, pounds.	New York, 6,462,549	6,462,549
Under potato regulations (order of Dec. 22, 1913), pounds.	Douglas, 687,583; Key West, 659,570; New York, 3,566,225; Nogales, 124,458.	5,037,836
Prickly pear.....pounds..	Eagle Pass, 60; El Paso, 9,457; Laredo, 1,650	11,167
Pumpkin.....do....	Brownsville, 222; Douglas, 2,516; Eagle Pass, 4,443; El Paso, 450; Key West, 26,724; Laredo, 4,505; New York, 28,261; Tampa, 8,963.	76,084
Purslane.....do....	Douglas, 31; Nogales, 1,549	1,580
Radish.....do....	Calexico, 127; Douglas, 5,457; Eagle Pass, 238; El Paso, 68,000; Laredo, 50; Nogales, 6,286; San Ysidro, 1,174.	81,332
Roselle.....do....	Nogales, 260	260
Sage.....do....	San Ysidro, 160	160
Sea onion.....do....	New York, 2,786	2,786
Sorrel.....do....	New York, 1,570	1,570
Spinach.....do....	Calexico, 994; Douglas, 20,530; Eagle Pass, 157; El Paso, 93,674; New York, 755; Nogales, 23,919.	140,029

TABLE 25.—*Fruits and vegetables imported during year ended June 30, 1928, by ports of entry*—Continued

Kind	Port and quantity	Total
Squash.....pounds..	Brownsville, 350; Calexico, 948; Douglas, 11,624; Eagle Pass, 30; El Paso, 72,626; Laredo, 975; Los Angeles, 5,880; New Orleans, 59,490; New York, 257,672; Nogales, 22,888; San Diego, 30,893; San Ysidro, 37,877.	501,253
Strawberry.....do....	El Paso, 1,342; Laredo, 124	1,466
Swiss chard.....do....	El Paso, 7,990	7,990
Tamarind bean pod....do....	El Paso, 510; Laredo, 88; New York, 27,117; Nogales, 20	27,735
Tangerine.....do....	Chicago, 29,120; New York, 35	29,155
Tomato.....do....	Brownsville, 35,810; Calexico, 46,921; Del Rio, 3,420; Douglas, 18,674; Eagle Pass, 104,392; El Paso, 778,922; Hidalgo, 850; Key West, 1,939,535; Laredo, 659,321; Los Angeles, 7,347,762; Miami, 2,276,680; New Orleans, 2,399,000; New York, 22,341,849; Nogales, 81,316,461; San Diego, 1,906; San Francisco, 1,315,831; San Ysidro, 47,220; Tampa, 21,420.	120,655,974
Turnip.....do....	Calexico, 1,345; Douglas, 12,560; Eagle Pass, 78; El Paso, 294,001; Laredo, 100; New York, 48,354; Nogales, 9,358.	365,796
Vaccinium (cranberry, etc.), pounds.	Boston, 185,519; New York, 371,561; San Francisco, 60	557,140
Water chestnut.....pounds..	Boston, 50,645; Chicago, 41,500; Detroit, 6,000; Los Angeles, 45,000; New York, 441,820; Portland, 600; San Francisco, 525,680; Seattle, 259,438.	1,370,683
Water cress.....do....	Douglas, 3,036; Eagle Pass, 8; Nogales, 671	3,715
Water-lily root.....do....	Boston, 1,900; Chicago, 3,000; New York, 2,592; Portland, 300; San Francisco, 25,530; Seattle, 16,149.	49,471
Watermelon.....do....	Calexico, 497,270; Douglas, 1,903; Eagle Pass, 2,130; El Paso, 6,140; New York, 12,120; Nogales, 756,778; San Ysidro, 5.	1,276,346

In addition to the regulated imports for consumption entry recorded in the foregoing tables, the board supervised the entry under permit, for immediate exportation or immediate transportation and exportation in bond, of great quantities of plants and plant products. Among some of the principal items may be mentioned approximately 1,330,000 bulbs, 919,800 fruit and rose stocks, 2,022,000 convallaria pips, 75,400 plants, shrubs and trees, 1,396,000 pounds of citrus fruits, and 1,067,000 pounds of potatoes.

BROOMS, BROOMCORN, AND GRAIN

Tables 26 to 28 indicate, respectively, the importations under quarantine 41 of brooms and broomcorn, clean shelled corn, and other seeds. Importations of clean shelled corn from countries other than those listed in quarantine 24 total over 5,000,000 bushels and show the first yearly record of importations of such corn since it was placed under restriction on January 1, 1927. Practically the entire quantity was imported from Argentina.

In addition the board supervised the entry, under quarantine 24, of 57,823 bushels of clean shelled corn from Manchuria (29,253 bushels at San Francisco and 28,570 bushels at Seattle) and, under quarantine 55, of 6,805,435 pounds of seed or paddy rice from Mexico.

TABLE 26.—*Importation of brooms and broomcorn, by country of origin and port of entry, 1927–28*

Country	Boston		Brownsville	Detroit	Laredo
	Brooms	Broomcorn	Brooms	Broomcorn	Brooms
		Bales		*Bales*	
Italy	24	[1] 572			
Mexico			120		144
United States (returned)				5	
Total	24	572	120	5	144

[1] 36 bales exported to Canada after sterilization.

TABLE 26.—*Importation of brooms and broomcorn, by country of origin and port of entry, 1927–28*—Continued

Country	New York		Port Huron	Seattle	Total	
	Brooms	Broomcorn	Broomcorn	Broomcorn	Brooms	Broomcorn
		Bales	*Bales*	*Bales*		*Bales*
Germany	341				[2] 341	
Italy	[2] 7,000				7,024	572
Mexico					264	
Rumania	24,104				24,104	
United States (returned)		5	8	7		25
Total	31,445	5	8	7	31,733	597

[2] 1,000 brooms transshipped to Colombia.

TABLE 27.—*Importation of clean shelled corn under quarantine 41, by port of entry and country of growth, 1927–28*

Port	Argentina	Bahama Islands	Canada		Haiti	United States (returned)		Total	
	Bushels	*Bushels*	*Bushels*	*Pkgs.*	*Bushels*	*Bushels*	*Pkgs.*	*Bushels*	*Pkgs.*
Baltimore	22,048							22,048	
Bellingham	169,733							169,733	
Boston	1,957							1,957	
Detroit				1		481	10	481	11
Los Angeles	29,839							29,839	
Miami		24						24	
New Orleans	534,449							534,449	
New York	1,838,369				2			1,838,371	
Nyando			¼					¼	
Philadelphia	254,137							254,137	
Portland	239,632							239,632	
San Francisco	727,680							727,680	
Seattle	742,165							742,165	
Tacoma	557,280							557,280	
Total	5,117,289	24	¼	1	2	481	10	5,117,796¼	11

TABLE 28.—*Importation of seeds, other than corn, under quarantine 41, by country of growth and port of entry*

Kind	New York				Seattle	Total
	France	Italy	Japan	Union of South Africa	Manchuria	
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Broomcorn seed		180				180
Job's tears	300					300
Pearl millet seed			92,460			92,460
Grain sorghum seed				105	400,000	400,105
Total	300	180	[1] 92,460	105	400,000	493,045

[1] Exported to Canada.

DOMESTIC PLANT QUARANTINES

During the year the board has enforced, either directly or in cooperation with the Bureau of Entomology and the Bureau of Plant Industry, 19 domestic plant quarantines concerning, on the one hand, interstate movement and, on the other, movement between Porto Rico and Hawaii and the mainland. The Hawaiian and Porto Rican quarantines are in a sense analogous to the foreign quarantines and entail like methods of enforcement,

and for administrative purposes are considered elsewhere in connection with the discussion of the enforcement of foreign plant quarantines.

The important domestic plant quarantines on account of the white pine blister rust and the black stem rust of small grains, are enforced in cooperation with this board by the Bureau of Plant Industry, and those on account of the Mediterranean fruit fly and melon fly in Hawaii and on the mainland and the quarantines on account of the Japanese beetle, the European corn borer, and the gipsy and brown-tail moths, are enforced in cooperation with this board by the Bureau of Entomology. The detailed discussion of the results of these quarantines, cooperatively enforced by the bureaus of this department, is eliminated from this report inasmuch as these subjects will be considered in the reports of the bureaus concerned. As already indicated, with the beginning of the current fiscal year all of these quarantines will fall under the new plant quarantine and control administration. The following quarantine discussion deals, therefore, for the fiscal year 1928, only with those quarantines all activities of which are enforced by the Federal Horticultural Board. These include the quarantines on account of the pink bollworm of cotton, the Thurberia weevil, and the date scale, together with the Mexican fruit worm, the enforcement of which latter, due to financial conditions, was transferred from September 16 to the end of the fiscal year to the Bureau of Entomology.

STATUS OF PINK-BOLLWORM CONTROL

NEW OUTBREAK IN WEST TEXAS

A very serious development in the pink-bollworm situation was the determination, during the first three months of 1928, of the presence of this cotton pest in seven new counties of western Texas, viz., Ector, Midland, Martin, Andrews, Glasscock, Howard, and Dawson. Nearly 400,000 acres of cotton are grown in these counties, and this, together with the fact that the new area is on the edge of the main Cotton Belt and that cotton plantings are more or less continuous eastward to the Atlantic seaboard, gives this infestation a very much greater importance and makes it a greater menace than were the older and isolated infestations in western Texas, New Mexico, and Arizona.

Fortunately, this infestation was discovered at the very beginning stage, and the actual infestation determined was at widely separated points and very light. The initial infestation was found at Odessa, in Ector County, December 31, 1927. The total points of infestation for all the counties concerned, as later determined by surveys conducted during January, February, and March, involved only 24 cotton fields. In addition to those named, the survey covered a wide fringe of counties in which nothing was found surrounding those determined as infested.

To develop this situation as rapidly as possible as a basis for the application of control measures, the inspections at the outset were limited to field examinations of the dead cotton stalks with whatever bolls remained attached. All the worms found in such bolls were dead, evidently having been killed during the severe cold period of about the end of December. The very natural but probably erroneous interpretation of such finding was that all the insects in the area had been thus killed. This interpretation, however, overlooks the fact that many worms remain in the seed and are carried to farmers' bins, or to gins, and oil mills, where they may be protected from the severity of the cold, and the further fact that a percentage enter the soil about the base of the plants to a depth of 2 or 3 inches and, forming their slight cocoon there, are fairly well protected. On the other hand, with the infestation as light as it was in the counties concerned, it is very difficult to find the worms in soil or in connection with seed, and no such findings were made.

After the extent of this new infestation had been disclosed, and to meet the emergency, the department, with the approval of the President, recommended that the item of $287,800 assigned for pink-bollworm work in the agricultural appropriation bill for the fiscal year ended June 30, 1928, be increased by $400,000, making a total of $687,800, part of which to be made immediately available. Early in March House Joint Resolution 223 was passed as a separate measure, making $200,000 immediately available until June 30, 1929. At the same time the item in the regular appropriation bill for 1929 was reduced to $487,800, and the bill passed carrying that amount.

The immediate control plans carried out as to this area, in addition to bringing it under State and Federal quarantine restrictions, included (1) tracing and intercepting shipments out of the area likely to spread infestation; (2) sterilizing all cottonseed remaining in the area; (3) thoroughly cleaning gins, mills, and other concentration

centers so as to destroy material likely to carry over infestation into the next crop year; and (4) increased precautions to prevent the influx of cottonseed from the older infested areas to the west. The failure to find living larvæ in standing cotton seemed to render unnecessary the cleaning of the fields of dead stalks.

In the tracing work it was deemed desirable, on account of the possibility that this infestation might have started earlier than 1927, to follow up all movement of cotton and seed and farm equipment for the crop years 1925 and 1926 as well as for 1927. In fact, certain slight and not fully identified indications of possible presence of the pest at Odessa were noted in connection with the crop of 1925. Fortunately, the very slight foothold of the pest in the new area necessarily minimized the risk from any distribution of seed and especially of lint, and this would be particularly true for the years 1925 or 1926, when it was not possible definitely to determine any infestation. The tracing work involved the movement of 2,843 cars of cottonseed for crushing purposes, 141 small shipments of cottonseed likely to be used for planting purposes, 955 shipments of household goods likely to contain cottonseed, 286,543 bales of cotton lint, and 232,022 bales of cotton linters.

The 1927 movement of the articles indicated out of the area was given first attention as representing the major risk. As a result of this work, all shipments of cottonseed, except four shipments, part of which had already been planted, were intercepted and disposed of by burning, crushing, or otherwise. As a precautionary measure, the fields in which these four shipments of seed were planted will be given thoroughgoing inspections in connection with the crop of 1928. Tracing records of the movement of household goods showed that approximately 4,500 pounds of cottonseed were shipped out with such movement. All this seed was intercepted and destroyed. Over 90 per cent of the 1927 seed crop which moved for crushing was found to have gone to seven cottonseed oil mills close to the involved area, and these mills were thoroughly cleaned of all material likely to carry infestation. The balance went to scattered points which will be kept under observation this year (1928).

The movement of suspected material for the years 1925 and 1926 was also traced, and the areas to which such shipments were made will be scouted this season.

One of the most important of the control measures carried out with respect to this new area was the disinfection, in a manner to destroy any insect life present but not to injure it for planting purposes, of all cottonseed remaining on farms, at gins, or other places within the area. This work was carried out with the active cooperation of the authorities of the State of Texas, and involved the sterilization and treatment of some 310,416 bushels of seed (approximately 10,000,000 pounds).

These control and eradication efforts in connection with the crop of 1927 were intended to be merely preliminary to a radical effort to eradicate the pest by the enforcement of noncotton zones over the area beginning with 1928. It will be recalled that the very successful work of eradication in eastern Texas and in Louisiana, involving total areas possibly greater, though not in actual cotton acreage, than the present western area, was successfully accomplished by the establishment and enforcement of such noncotton zones over varying periods—one to three years. It will be recalled also that, in connection with such noncotton zones, a plan was ultimately devised for repayment of farmers for losses which they sustained as a result of their being prevented from growing cotton. This plan was voiced in the joint resolution of Congress of 1921, and provided for State payment of the growers' losses with Federal reimbursement to the State of not to exceed one-third of the amount so expended, and with a limitation of $5 per acre—the loss to be based on the difference of the return to the farmer from corn or other cultivated crop as compared with cotton. In connection with the new outbreak, in western Texas, however, a situation developed which made it impossible to work on this older plan. The State of Texas was without funds to participate in meeting such costs, and no provision therefor could be made until the next meeting of the legislature.

In view of the emergency and the necessity for immediate action, the following joint resolution was passed by Congress and approved by the President May 21, 1928:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That when any State shall have enacted legislation and taken measures, including the establishment and enforcement of noncotton zones, adequate, in the opinion of the Secretary of Agriculture, to eradicate the pink bollworm in any area thereof actually infested, or threatened, by such pest, the said Secretary, under regulations to be prescribed by him, is authorized to pay, out of $5,000,000 hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, to be expended in cooperation with the proper authori-

ties of the State concerned in compensating any farmer for his actual and necessary loss due to the enforced nonproduction of cotton within said zones: *Provided*, That no part of the funds herein authorized to be appropriated shall be available for compensation in connection with the establishment of a noncotton zone in any county unless and until the live pink bollworm is found within such county or within a radius of five miles thereof: *Provided further*, That such loss as to noncotton zones established by the State of Texas shall be determined as provided for in existing statutes of that State, and similarly by similar statutes which may later be provided by other States concerned, and that in estimating such loss due account shall be taken of the value of other crops which may be produced on said land, so that the loss shall not exceed the difference in return to the farmer from cotton over such other crops: *Provided further*, That such determination of actual and necessary loss shall be subject to the review and approval of the Secretary of Agriculture: *And provided further*, That no reimbursement shall be made with respect to any farmer who has not complied in good faith with all of the quarantine and control regulations prescribed by said Secretary of Agriculture and such State relative to the pink bollworm: *And provided further*, That the appropriation herein authorized shall be available only for compensation for the crop of 1928 unless the State in which any noncotton zone is established shall thereafter appropriate and pay a sum in each year equal to the amount expended in such State by the United States under this authorization.

The first proviso of the joint resolution was added in executive session by the committee without consultation with the department and provides that the funds shall not be available "for compensation in connection with the establishment of a noncotton zone in any county unless and until the live pink bollworm is found within such county or within a radius of 5 miles thereof." This proviso unfortunately also has the effect, possibly not intended by its proposer, of preventing the establishment of any noncotton zone for the crop year of 1928 in any of the counties in which the pink bollworm was first found in 1927. This results from the condition already indicated, namely, that the scarcity of the pink bollworm in this area makes it practically impossible to find any insects at this time in relation to the crop of 1927 and therefore postpones the establishment of any noncotton zone until infestation, if it occurs, has been redetermined in connection with the crop of 1928 or later crops.

In pursuance of this resolution a supplemental estimate for an appropriation of $5,000,000 for this work was, with the approval of the President, submitted to Congress on May 21, 1928, and was incorporated by the Senate committee in its amendments to the second deficiency bill. The language for this appropriation item carried the following proviso which agreed in substance with the similar proviso in the joint resolution:

Provided, That the appropriation herein made shall be available only for compensation for the crop of 1928, unless the State in which any noncotton zone is established shall thereafter appropriate and pay a sum in each year equal to the amount expended in such State by the United States under this authorization.

On May 23, 1928, the amendment offered by the Senate committee, which provided for the appropriation of $5,000,000 and included the proviso as quoted above, was approved by the Senate. (See Congressional Record, p. 9932.) The following day, without specific reference either to this item, the Department of Agriculture, cotton, or the pink bollworm, certain verbal changes, introduced as "relating to an item which was under consideration yesterday," were proposed on the floor of the Senate and agreed to. In point of fact, these changes applied to this proviso and destroyed the purpose of the joint resolution so far as it applied to the crop of 1928. The amended proviso reads as follows:

Provided, That the appropriation herein made shall be available only for compensation for the crop of 1928, and then only in such State in which any noncotton zone is established as shall appropriate and pay a sum equal to the amount expended in such State by the United States under this authorization.

The clear purpose of the proviso as submitted to, and as originally approved by, the Senate was, by provision for full Federal compensation for 1928, to meet the situation fully detailed in the preamble to the joint resolution, namely, the inability of Texas, the principal State concerned, under existing conditions, to make any payments on account of noncotton zones for the crop of 1928. The new wording defeats this purpose and, in addition, limits the availability of the appropriation to the single year 1928.

No apparent notice was taken of these changes, either in the Senate or the House, by the proponents of the pink bollworm item, and the department had no means of identifying the obscure verbal changes with the appropriation until after Congress adjourned and distribution was made of the printed copies of the second deficiency act for the fiscal year 1928.

Prior to the passage of the joint resolution referred to above, one county in Texas, namely, Brewster, in the Big Bend area, where the pink bollworm is so abundant that living specimens can be found at any time of the year, had been declared a noncotton zone by that State. This county, which is the only one in which a noncotton zone has been declared, involves production of only some 500 acres, and the Federal cost in the enforcement of a noncotton zone in this area would be comparatively small.

It would seem to be most unfortunate that a noncotton zone could not have been established to include the seven counties in the western extension area in connection with the crop of 1928. The eradication effort would have then had the advantage of being undertaken at the very incipiency of the infestation and would have been further supported by the apparently very large winter kill of larvæ in the field already referred to and, incidentally, by the intensive clean-up and disinfection of seed on farm premises, at gins, and oil mills. A more favorable period for eradication work will not return, but it is possible that with the existing quarantine controls, spread can be prevented, and if infestation develops later this year (1928) a noncotton zone can be declared effective as to the crop of 1929. At the date at which this report is submitted it is not possible to give any information as to the outlook of infestation of the crop of this year. No infestation has yet been determined, and similarly no findings have been possible prior to September or October, in other years in areas as scantily infested as was the western extension group of counties in 1927.

It requires no argument to indicate the desirability of going forward with the thoroughgoing effort of eradication, especially in view of the successes which have been had with this method in former years. Unless eradication is effected, the pink bollworm is bound to spread eastward through the continuous cotton cultivation of Texas, and the hope of elimination of this pest from the cotton crop of North America will then be gone. An initial $5,000,000 appropriation for eradication may seem large, but it is very trivial in comparison with the annual losses which may very possibly result from this pest should it gain distribution similar to that of the boll weevil—losses which might prove to be equal to if not greater than those occasioned by the weevil.

The source of this new infestation in western Texas has not been definitely determined. The early theory, which now seems not to have adequate proof, was that it had perhaps resulted from illegal transportation of planting seed from infested areas in the upper Rio Grande. It also was appreciated that, in part at least, it may have been occasioned by the uncontrolled movement of Mexican labor with picking sacks and other equipment contaminated with seed from Mexico. The effort to control this possibility of spread by road movement is described in another section of this report. There is a possibility also that the pink-bollworm moths may have spread by flight, with the aid of strong winds, from the intensive infestation in the Big Bend area or the near-by very slightly infested Pecos areas.

Hitherto the prevention of such spread has evidently een the wide natural barrier zone of semidesert and pasturage which has existed between the western extension of continuous cotton cultivation in Texas and the cotton plantings more or less infested with the pink bollworm in the Pecos and Rio Grande Valleys. The risk from the rather rapid narrowing of this zone by the continued westward movement of cotton cultivation has been fully recognized by State and Federal authorities, has been discussed in these annual reports, and has been the basis of annual inspections of such western extension of cotton. Such inspections resulted in the finding in 1925 of a slight indication of possible pink-bollworm infestation at Odessa, Tex., near the extreme advance of cotton, but no larvæ were found in the injured bolls to serve for accurate identification. The suspicion which was thus placed on a portion of this area led to the thorough inspection in 1927 which resulted in the disclosure of infestation in the crop of that year.

The Bureau of Entomology, in cooperation with the Federal Horticultural Board, had already undertaken investigations to determine the possibility of wind spread of the pest, and these investigations will be very much enlarged during the season of 1928. If the infestation in this western extension is due to wind spread, it is clear that the system of control should involve a radical effort to free from this pest a considerable part, if not all, of the infested areas in the Pecos and Rio Grande Valleys; in other words, the rather ambitious plan of eradicating this pest from the United States should be undertaken. This will necessarily involve cooperation with Mexico, but the conditions are such as to make the possibility of securing such cooperation much more promising now than in former years.

SITUATION AS TO OLDER AREAS OF INFESTATION

In the areas in central and eastern Texas and in Louisiana in which the pink bollworm seems to have been eradicated and over which it has not reappeared for a considerable series of

years, a thoroughgoing scouting effort was made in connection with the crop of 1927 with the object, if nothing was found, to discontinue annual scouting in these areas in order better to meet the increasing demands of the western areas. No signs of the pink bollworm were found as the result of this intensive effort.

In the western areas of more or less continuing infestation in the upper Rio Grande and Pecos Valleys in western Texas, and in New Mexico, and in the more recently determined infestation in southeastern Arizona and southwestern New Mexico, pink bollworms were found, for the most part in small numbers and spottedly, in connection with the crop of 1927. Except in the Big Bend area, the abundance of the pink bollworm in these western areas of infestation varies considerably from year to year, evidently largely because of climatic control. A condition of continuing and increasing infestation has, however, developed in the Big Bend district of the Rio Grande, and in important areas boll infestation, at the end of the season, has reached 100 per cent. As elsewhere noted, a noncotton zone is being enforced by Texas as to a portion of this area (Brewster County), beginning with 1928.

The only important change in the situation in these western areas was the finding of the pink bollworm in an isolated field in the Santa Cruz Valley of Arizona, a point farther west than this pest had hitherto reached. This advanced point is significant because of its indication of the risk of the pest's spreading to the important Salt River Valley plantings to the north. In connection with the discovery of this infestation in the Santa Cruz Valley, it is interesting and important to future scouting operations to note that it resulted from an examination of trash at the gin in the Postvale area, some 25 miles from the field to which the infestation was later traced. Investigation showed that the cotton from which this gin trash originated came from a field south of Tucson, and the subsequent scouting of this field revealed the presence there of the pink bollworm. Such examination of gin trash is recognized as a valuable adjunct to field scouting and aided later in the season in determining the presence of pink bollworm at half a dozen other areas in the general western region of the infestation. Incidentally thorough scouting throughout the Santa Cruz Valley failed to show any other infested fields. Inasmuch as the Santa Cruz Valley was already under regulation on account of the Thurberia weevil, measures which would prevent spread of the pink bollworm were already in operation.

The effort to eradicate the pink bollworm in the infested areas in southeastern Arizona and southwestern New Mexico began in 1926 and was discussed in my report for 1927. An item of $35,000 to continue this work was included in the second deficiency bill of the fiscal year 1927, which failed to pass. The need, however, was so urgent that other important work was discontinued and an actual clean-up of the infested fields (crop of 1926) was carried out early in 1927.

For the purpose of following up this eradication effort in connection with the crop of 1927, an urgent deficiency item of $90,000 was approved and included in the first deficiency bill for 1928. These funds became available in December, 1927, and the areas determined to be infested by the pink bollworm in southeastern Arizona and southwestern New Mexico were again very thoroughly cleaned. This involved a total of 12,121 acres, some 300 of which were cleaned by the State of Arizona. There was also a thorough clean-up of cottonseed and trash on farm premises, at gins, in gin yards, at loading stations, etc. The eradication value of the work of these two years can not be determined until the crop of 1928 has been fully scouted.

FIELD SCOUTING WORK

Field scouting for the pink bollworm each year is a necessary continuing feature of control. The intensive scouting work of this year in the old areas, carried on with the idea of eliminating these areas from annual scoutings, has already been discussed. Nevertheless, the necessity will remain, because of the possibility of reinvasion from Mexico, of taking an accounting of these areas from time to time and of any other areas under suspicion, with the object of locating any new infestations at the earliest possible moment. Table 29 gives, in connection with the report of scouting by man-days for the crop of 1927, a record of similar scouting for the previous four years, thus covering a 5-year period. The results of scouting for the crop years between 1917 and 1926 will be found in the annual report for 1927.

TABLE 29.—*Summary of pink bollworm scouting showing number of man-days scouting and number of infested fields for each of the districts scouted, 1923–1927*

District	1923		1924		1925		1926		1927	
	Man-days	Infested fields	Man-days	Infested fields	Man-days	Infested fields	Man-days	Infested fields	Man-days	Infested fields
Eradication areas:										
Hearne, Tex	255	0	0	0	0	0	0	0	0	0
Trinity Bay, Tex	1,225	0	1,046	0	787	0	828	0	1,025	0
Ennis, Tex	740	0	835	0	606	0	566	0	842	0
Marilee, Tex	611	0	612	0	237	0	283	0	418	0
Cameron, La	718	0	655	0	649	0	661	0	533	0
Shreveport, La	648	0	826	0	606	0	568	0	781	0
Infested areas:										
Pecos Valley, N. Mex.[1]	1,212	0	741	0	626	16	97	0	126	2
Pecos Valley, Tex	421	5	650	15	183	22	32	8	1	6
Mesilla Valley, N. Mex	231	0	158	0	155	0	47	2	303	6
Mesilla Valley, Tex	0	0	140	0	17	1	1	2	0	0
El Paso Valley, Tex	406	1	397	1	131	14	114	4	55	2
Big Bend, Tex	66	36	167	62	(2)	96	(2)	(6)	(2)	(6)
Big Bend, Mexico	2	3	(3)	2	0	0	(2)	(6)	(2)	(6)
Juarez Valley, Mexico	0	0	0	0	2	3	27	0	0	0
San Carlos, Monclova, Mexico	26	0	40	0	37	0	36	2	0	0
Deming, N. Mex	1	0	0	0	15	0	34	3	2	1
Duncan Valley, Ariz. and N. Mex	0	0	0	0	0	0	71	1	9	3
Gila (Safford) Valley, Ariz	19	0	0	0	28	0	262	4	7	3
Cochise Co., Ariz	0	0	0	0	11	0	160	10	20	4
Santa Cruz Valley, Ariz.[4]	47	0	333	0	197	0	339	0	454	1
Western Extension, Tex	39	0	16	0	746	0	967	0	2,534	24
Suspicious areas:										
Lower Rio Grande, Tex	881	0	354	0	886	0	671	0	592	0
Lower Rio Grande, Mexico	35	0	34	0	16	0	15	0	8	0
Other areas [5]	1,793	0	444	0	436	0	1,198	0	926	0
Total	9,376	45	7,448	80	6,371	152	6,977	36	8,636	52

[1] Infestation in this valley was confined in the past to Carlsbad and vicinity and is referred to in certain previous reports as "Carlsbad" infestation.
[2] Research examinations.
[3] Figures not available.
[4] Includes plantings extending from Red Rock southward to Nogales.
[5] Covers scouting done around centers in the Cotton Belt to which seed from infested areas had been distributed in the earlier years of the campaign of eradication. These areas were thoroughly investigated for a number of years afterwards without finding any infestation, but it seemed advisable to give them an intensive resurvey before releasing them from further consideration.
[6] Heavy infestation; exact number of fields not recorded.

PREVENTION OF SPREAD BY CONTROL OF MOVEMENT OF CONTAMINATED ARTICLES

Under the provisions of quarantine No. 52 (revised) the control of the spread of the pink bollworm is attained through the enforcement of regulations requiring the sterilization of cottonseed at the gins, the compression and subsequent fumigation under vacuum of all cotton lint and linters, the movement under regulation of all cottonseed products, household goods and other things and substances likely to spread infestation through contamination, and the cleaning of railway cars from cottonseed and trash as a condition of their movement for any purpose out of the quarantined area.

During the year, 138,984 bales of cotton lint and linters were compressed and were fumigated under vacuum with hydrocyanic-acid gas. Of this number 1,510 bales were produced in the Juarez Valley of Mexico, which is under regulations identical with those governing the regulated areas of the United States. Eight vacuum fumigation plants were in operation during the season, located as follows: Tucson, Ariz., Las Cruces, N. Mex., El Paso, Tex., two plants at Fabens, Tex., Marfa, Tex., Pecos, Tex., and Roswell, N. Mex. Plants are now being constructed in the recently involved area at Lamesa and Big Spring, Tex.

DISINFECTION OF SEED AT GINS

Undoubtedly the most vital step for the local control and prevention of spread of the pink bollworm is to kill the insect in the cottonseed. In the cotton gins the cottonseed, in all infested areas, before being discharged, is heated to a temperature sufficient to kill the pink bollworm without injuring

germination. Such treatment is enforced in cooperation with this department by State authorities under State regulations, and all heating machines are visited at least once a day by inspectors. These machines are now operating at a higher efficiency than ever before, the average efficiency of the season being 91 per cent; in other words, for that proportion of the time the temperature was maintained at the required rate. Most of the balance of the time, even if at a lower rate, fairly effective results are obtained, and owing to occasional breakdowns and other unavoidable troubles, during which the recording device may continue to register, the actual efficiency is, as a matter of fact, higher than indicated. Continued improvement in seed heating will be in the direction of more accurately regulating the period of exposure to heat, and this will be given especial attention next year. It is estimated that approximately 69,492 tons of cottonseed were this year sterilized under the provisions of the pink-bollworm quarantine.

ROAD STATIONS

The necessity for inspection and control work to prevent the accidental or malicious movement of contraband articles likely to carry pink bollworm at road stations is well understood and is one of the important means of preventing the spread of this pest. During the year 19 road stations were operated, at the following places: Lordsburg (westbound), Silver City, Roswell (two stations), Lake Arthur, Hagerman, Artesia, and Carlsbad, N. Mex., and Barstow, Girvin, Grand Falls, Buena Vista, Fort Stockton, Sanderson, Marathon, Alpine, Lobo, and Fort Davis, Tex., and Rice, Ariz. The stations at Hagerman, Lake Arthur, Carlsbad, and Artesia, N. Mex., and Barstow, Buena Vista, Grand Falls and Sanderson, Tex., were operated approximately one and one-half months only. A total of 96,614 cars was inspected, and from these 2,303 lots of material capable of carrying pink bollworm infestation were taken. Interceptions for the station at Rice, Ariz., are not included in these figures, as this station is operated by the State of Arizona. Four new stations have been established to intercept, as close to the point of origin as possible, movement of contraband material coming out of the heavily infested Big Bend areas. Three or four road stations will also be put in to intercept eastbound traffic from the recently involved area of the western extension.

INVESTIGATIONAL WORK

No important project such as the pink bollworm control can be carried out without certain incidental investigations of a research type being necessary, but in general all such necessary research work is being conducted in close cooperation with the agencies of the department directly concerned. During the year some careful fundamental investigations were conducted in connection with vacuum fumigation of cotton lint. The efficacy of vacuum fumigation of lint and linters has been very materially increased as a result of information secured through these investigations and the work gives promise of still further increasing the value of fumigation. The Bureau of Entomology has made arrangements to continue this work in cooperation with the board.

COOPERATION WITH MEXICO

At the present time the important cooperation which Mexico is giving has relation to cotton which is being produced near our border, more particularly in the Juarez Valley opposite El Paso, and very recently at Matamoros. It is important to us that the infestation on the Mexican side should be kept down as thoroughly as it is on the United States side of the river, and to accomplish this purpose, that all seed should be disinfected at the gin. Cooperation with the local Mexican authorities and cotton growers has brought about the installation of disinfecting apparatus at all gins, and our inspectors are permitted to supervise and enforce this control, with the result that all Mexican seed is being thus treated at a very high rate of efficiency. In return the Mexican lint is permitted to cross the border under bond for disinfection and compression and sale in the United States instead of being required as formerly to go by water route to some northern port of entry of the United States for disinfection as condition of entry. The safety under the existing controls of such locally grown Mexican cotton is on all fours with that produced on the United States side in the El Paso Valley.

The possibility of even more important cooperation with Mexico in our effort to control if not to eradicate the pink bollworm is promising, as a result of discussion of the subject with Mexican authorities and the clear indication of interest on their part and willingness to enter into any arrangement to this end which may seem to be practicable.

THURBERIA WEEVIL

During the crop year 1927 there were no important changes in the known status of the Thurberia or Arizona boll weevil. The necessity of protecting the irrigated and dry-land cotton areas from this pest was again emphasized by the investigations of the Bureau of Entomology which indicate the ability of this native variety of the boll weevil to adapt itself immediately and fully to cultivated cotton.

The importance of the Thurberia weevil is due to its threat to cotton production in those drier portions of the Cotton Belt where it can survive periods of heat and drought fatal to the well-known Mexican cotton boll weevil. The latter is limited in its possible spread westward, by its inadaptability to arid conditions; but if the Thurberia weevil succeeds in spreading throughout these drier areas, the growers of western Texas, New Mexico, and Arizona may face losses from its work equal to those which the older and better-known variety of boll weevil has brought about in the Southeastern States. The department in cooperation with the State of Arizona is endeavoring to prevent its dissemination to other localities from the southeastern counties of that State where it feeds on the Thurberia plant and has spread to many of the cotton fields.

The most important development in this work during the past year was the dissolution of the injunction which had been granted November 19, 1926, prohibiting the Secretary of Agriculture, the Federal Horticultural Board and their agents from carrying out the provisions of quarantine 61 as applied to the Postvale area. The court decided that—

> The act of Congress having conferred upon the Secretary of Agriculture the power and duty to find facts and determine conditions upon which the operation of the statute depends, such findings and determination can not be judicially reviewed in the absence of a showing that he acted arbitrarily or unfairly, or that there was not evidence to support such finding and determination.

The plaintiff's applications (1) that the Secretary of Agriculture be enjoined from the enforcement of the quarantine regulations, and (2) that the Southern Pacific Railroad be enjoined from refusing to receive and ship his cotton and cotton seed without compliance with said quarantine order and the regulations thereunder with respect to fumigation and sterilization, were both denied, and judgment entered for the defendants—the Secretary of Agriculture and the railroad company.

Scouting for the Thurberia weevil in Arizona totaled 1,092 man-days. Scouting for the pink bollworm and Thurberia weevil in Arizona was conducted simultaneously and practically all of this scouting which was done in the Thurberia weevil-infested areas and in areas in close proximity thereto, was carried on either by trained inspectors of the Bureau of Entomology or else under their close supervision. The weevil was found to be quite generally distributed in all cotton plantings south of Tucson and it was also found without difficulty in the cotton plantings just north of that city.

With the changing of the requirements for the treatment of cotton lint and linters which were made in the last revision (July 9, 1927) of quarantine 61, the methods of preventing the spread of this pest are the same as those used for the pink bollworm.

The heating of cottonseed was conducted at the high average efficiency of over 95 per cent. Approximately 5,336 tons of cottonseed were sterilized under the provisions of the quarantine during the course of the season and 10,672 bales of cotton lint and linters were compressed and subsequently fumigated under vacuum with hydrocyanic-acid gas. As in the case of the pink bollworm quarantine, compression is an added requirement effective the first time this year.

At road stations operated at Picacho and Tucson (two stations), Ariz., and Lordsburg, N. Mex. (eastbound), 70,651 cars were inspected from which 2,722 lots of materials capable of carrying infestation were confiscated.

The records of eastbound interceptions of the Lordsburg, N. Mex. station are included because these are made solely to prevent eastward carriage of the insect out of the Thurberia weevil area of Arizona which extends practically up to the New Mexico line.

QUARANTINE ON DOMESTIC NARCISSUS

The enforcement of the quarantine regulations governing the interstate movement of narcissus bulbs has been carried out for the board by the plant-inspection services of the various States. The last annual report presents a table of the number of narcissus inspections reported to the department from January 1, 1927, to October 1, 1927. At the time the present report is being prepared, the results of the field inspection for the season of 1928 have not yet been received and the second or storage inspection of the bulbs has not yet been completed.

The regulations supplemental to the quarantine were amended effective May 15, 1928, making certain changes in shipping restrictions and modifying the treating requirements in cases where bulb flies but no eelworms were discovered on inspection. The important features of the regulations previously in effect, including the requirements of both field and crop inspections, and treatment in case any infestation is found in the plantings, were retained.

DATE SCALE ERADICATION

The very promising outlook for the completion of the eradication of the Parlatoria date scale from the United States, as presented in the last annual report, received a setback during the latter part of 1927 when several new date-scale infestations were discovered in California and Arizona. These outbreaks were sufficiently serious, in the belief of the growers and of date experts of the department, to threaten the future of the date industry in the United States if not properly controlled.

To meet this emergency, a supplemental appropriation of $25,000 was included in the deficiency bill of December, 1927, the amount to remain available until June 30, 1929, and the control work was completely reorganized. An agent of the Bureau of Entomology thoroughly experienced in eradication work, B. L. Boyden, was transferred from the truck crop insect investigations office to the board, to take charge in the field, with headquarters at Indio, Calif. The first object under the new organization was to make a complete and thorough census and inspection of the date plantings, commercial and other, in the States concerned—California, Arizona, and Texas—with the object of disclosing the existing extent of scale infestation as a basis of determination of the future program of eradication work. It developed that it had never been possible, under the previous appropriations and personnel, to make such a general survey—a situation which was very unfavorable to any eradication program. Along with the present survey it was proposed that preliminary clean-up work should be done, including all isolated trees or minor points of infestation, and that the more important infestations should be cleaned up as rapidly as possible without, however, interrupting the progress of the fundamental survey work

Under this plan, surveys have been made and clean-up work undertaken throughout the Coachella and Imperial Valleys in California and in the date areas in Arizona. The areas in Texas have not yet been reached. In the Coachella Valley some 136,000 date palms have been located and inspected. Of these, 1,044 located on 19 different properties were found infested. Twelve of these properties had been considered free from scale, while on the remaining 7, eradication operations had been in progress for a considerable period. In the Imperial Valley, inspections were made of 2,700 palms, and infestations were found on 77 of these trees located on 11 different properties. The scouting in the north end of the Imperial Valley in the Calipatra district has been more encouraging, none of the 4,037 palms so far located having been found infested. In the Salt River Valley of Arizona surrounding Phoenix approximately 15,000 palm inspections were made and 84 palms on 9 properties were found infested. In the Yuma district of Arizona 24,000 palm inspections were made and 5 infested palms were found. These infested palms were all door-yard plantings in the city of Yuma.

Heavily infested palms were found in these various areas constituting centers of infestation. In many cases lightly infested palms were found in the vicinity of the centers of infestation showing the tendency to spread. The type of inspection necessary to discover light infestations for treatment before they become centers of infestation is difficult and slow.

Except in the Imperial Valley, the infestation determined has been less than 1 per cent of the number of trees or palms inspected. The indications from the survey as so far completed are on the whole favorable to the possibility of ultimately eradicating the scale, but it is clear that such eradication will involve much greater cost than has hitherto been estimated.

The method of eradication consists in defoliating the trees and torching them with a gasoline torch. Some 5,600 palms were given this treatment during the progress of the survey. Many of the torched trees were not actually determined as infested but were adjoining or close to trees on which scale had been discovered. In the case of certain infested plantings which had been abandoned and were considered no longer of commercial value, all of the trees—some 2,500—were dug out and destroyed.

An effort is being made by the date specialists of the Bureau of Plant Industry to encourage the establishment

of scale-free date plantings in certain new districts in the Southwestern States. All palm offshoots shipped to these points are given the heat treatment described in my last annual report.

MEXICAN FRUIT WORM

The control of the Mexican fruit worm outbreak in the lower Rio Grande Valley, which threatened the very important citrus development of that region, has been most successful. The enforcement of quarantine restrictions and drastic clean-up and eradication work have apparently prevented any reappearance of the fruit fly in this district, and the very large crop of 1927–28 has been harvested without the finding of a single infested fruit. This outcome seems to indicate the possibility of protecting this industry indefinitely by a continuation of the measures now being enforced. It was possible to obtain this very gratifying result only by the active cooperation in the enforcement of quarantine regulations and clean-up measures by State authorities, and more particularly by the extraordinary self-sacrifice of the citizens of the district. This cooperation concerned particularly the destruction of all fruit ripening during the seven months so-called starvation period during which it was the intention that no fruit should develop or remain on any trees at a stage which would be attractive to the pest.

The situation relative to this fruit worm and the control measures were rather fully discussed in my annual report for the fiscal year ended June 30, 1927.

Following the original discovery of the pest by authorities of the State experiment station and the reporting of this finding directly, and also through the Texas State Department of Agriculture to this department, control work was immediately instituted. In the absence of any available board funds and the apparent impossibility of obtaining any until Congress should be again in session, clean-up and control work was undertaken by a temporary detail of leaders and inspectors from the pink-bollworm forces in Texas—a procedure believed to be fully warranted by the necessity for immediate action. In the prosecution of this work the department had the active cooperation of the Texas State Department of Agriculture. The first step was the clean-up or destruction of ripe citrus and all other fruit, beginning May 1, 1927, and this was followed by the maintenance of a nonfruit zone during the summer of that year. Later on it was found possible to make certain adjustments of funds in the Bureau of Entomology by which $30,733 were assigned to the division of the bureau in charge of fruit-worm investigations, and thus made available to carry out this control project. Much of the personnel which had already been detailed from the board was transferred to the rolls of the bureau September 16, and from that time until the emergency appropriation of $100,000 made in the first deficiency bill of 1928 became available, December 22, 1927, the field direction of the work was conducted by the bureau under the general direction of the board. The special emergency appropriation was also assigned to the bureau for the continuation of the work for the balance of the fiscal year to avoid the necessity of a reshifting of personnel and accounts in the midst of the shipping season. It was provided, however, that the full control of the work should be taken over by the plant quarantine and control administration with the beginning of the fiscal year 1929. To give continuity to the record of quarantine and control work on account of this fruit fly, the report of the work for the fiscal year 1928 is included in its entirety in the report of the board.

The important operations of the present fiscal year included (1) the completion of the enforcement of the nonfruit period from July 1 to September 30; (2) the inspection and certification of citrus fruit for the winter shipping period, October to February, inclusive; and (3) the enforcement again of the nonfruit period beginning March 1. In the conduct of these various operations, the same very general and loyal cooperation on the part of the officials of the Texas State Department of Agriculture and of the citizens of the district has characterized the work.

FRUIT MOVEMENT

In connection with the citrus crop of 1927–28, marketed in the five months October to February, all movement of fruit was based on Federal inspection and certification, and such inspection and certification was further conditioned on safeguards and requirements pertaining to groves and premises, grading of fruit, disposal of culls, and the maintenance at all packing plants, subject to the examination by inspectors, of complete lists of all consignees, together with records of the amount and date of each shipment. Each or-

chardist was also required to keep his grove free from dropped fruits, rubbish, and weeds during this season, and to dispose of all fallen and discarded fruit either by burning or by burial to such depth as would prevent the escape of any fruit flies. In addition, a regular monthly inspection of citrus groves was carried out during the shipping season to determine the freedom of the groves from possible infestation. The extent of the work of grove inspection is indicated by the fact that there are now in the district some 477,000 grapefruit, orange, and other citrus-fruit trees in bearing. In connection with these inspections, a census was made of citrus plantings in the district, which is incorporated here in Table 30 as indicating the probable future increase of inspection and control work. An incidental benefit from the quarantine requirements is that the destruction or other utilization of culls and grading of the fruit has increased the demand and improved the market for the fruit.

TABLE 30.—*Citrus census of the lower Rio Grande Valley of Texas, taken in summer of 1928*

County and fruit	The number of growing citrus trees of different ages [1]						
	0	1	2	3	4	5	Total
Cameron County:							
Grapefruit	253,709	149,153	111,027	106,619	69,659	142,684	832,851
Oranges	88,582	69,300	63,754	65,251	45,000	53,640	385,527
Other citrus [2]	1,820	2,283	3,288	4,704	3,182	7,954	23,231
Total	344,111	220,736	178,069	176,574	117,841	204,278	1,241,609
Hidalgo County:							
Grapefruit	646,888	304,889	181,813	136,363	79,075	193,109	1,542,137
Oranges	184,015	110,093	90,809	72,571	34,138	60,830	552,456
Other citrus [2]	5,284	3,298	5,272	5,584	3,684	13,227	36,349
Total	836,187	418,280	277,894	214,518	116,897	267,166	2,130,942
Willacy County:							
Grapefruit	15,737	4,190	4,244	1,680	92	2,715	28,658
Oranges	7,701	1,707	2,871	980	214	1,922	15,395
Other citrus [2]	534	136	363	292	107	1,121	2,553
Total	23,972	6,033	7,478	2,952	413	5,758	46,606
Total for all counties:							
Grapefruit	916,334	458,232	297,084	244,662	148,826	338,508	2,403,646
Oranges	280,298	181,100	157,434	138,802	79,352	116,392	953,378
Other citrus [2]	7,638	5,717	8,923	10,580	6,973	22,302	62,133
Grand total	1,204,270	645,049	463,441	394,044	235,151	477,202	3,419,157

[1] In the table the ages of trees are classified as 0, 1, 2, 3, 4, and 5. Trees given under classification 0 were planted during, or at the beginning of, the growing season 1927-28. Trees given under classification 1 were planted during, or at the beginning of, the growing season 1926-27. The ages of trees designated as 2, 3, and 4, respectively, will be understood in the light of this explanation. Trees given under classification 5 are 5 years old or older.

[2] Under this classification is included kumquats, limes, mandarins, satsumas, sour oranges, tangelos, tangerines, lemons, etc.

Permits were issued to 494 concerns for the packing of grapefruit, oranges, and kumquats, and 654,130 shipping tags were supplied to them. Railroad reports indicate that 1,144 carloads of citrus fruit were shipped out of the lower Rio Grande Valley during the season. In addition to this, approximately 190 carloads of fruit were sent by express, and possibly some 200 carloads by truck and mail, or carried out by tourists. This would indicate a total crop movement out of the area during the season of approximately 1,534 carloads.

ERADICATION MEASURES

The drastic program of eradication involving the enforcement of the starvation period each season for seven months, from March 1 to September 30, as well as the repeated inspection of citrus groves and control of movement of fruit must be carried out as long as infested fruit continues to be brought to nearby Mexican markets or as long as there is any infestation on the Mexican side of the border. The maintenance of the important citrus industry which has grown up in the

lower Rio Grande necessitates the acceptance indefinitely by the residents of that district of the hardship of the loss of summer fruit. The particular purpose of the maintenance of a nonfruit period is to prevent any of the parent fruit flies, which may cross the border or any flies which may emerge from infested fruits illegally carried over from Mexico, from finding host fruits available for infestation and breeding.

The first step in the enforcement of fruit fly eradication for 1928 was an educational campaign to secure the prompt removal prior to the end of February of all citrus fruit remaining on the trees; and this effort, due to full cooperation, was successful. The next step was the elimination of other fruits ripening during the following seven months' period. There were in the area approximately 35,000 peach, plum, and other host fruit trees of varieties normally ripening during the summer period. Under the regulations, owners were permitted either to remove the green fruit from such trees before it began to ripen, or to destroy the trees themselves. The constant difficulty and annoyance of removal of ripening fruit, let alone the vast amount of inspection and follow-up involved, can easily be appreciated. An effort has, therefore, been made to rid the citizens of the district once for all from this annoyance and difficulty and disappointment by encouraging them either to destroy the trees themselves, or to permit them to be uprooted and destroyed. Approximately 75 per cent of the trees have been thus removed and, in the case of the others, the fruit is being destroyed. It seems probable that all such trees will be eliminated in the near future. For the success of such elimination, it is clear that the citrus-fruit industry of the district is tremendously indebted to many citizens not directly interested in the returns from the crop or the future of the industry.

Deserving of even higher commendation and praise in this connection is the hearty cooperation of Mexican officials and residents on the Mexican side of the border. The presentation of the desirability of a similar clean-up of fruits in Matamoros and along the border opposite the citrus-growing area of Texas led to an immediate and favorable response from the appropriate Mexican officials, with the result that a clean-up was made on the Mexican border, beginning with the Gulf of Mexico and extending nearly 100 miles up the river. Inspectors of the Mexican Department of Agriculture, accompanied by laborers, made a house-to-house canvass throughout the towns and villages of this section and also the farms and ranches, to destroy the host fruit. The total amount of fruit picked in Mexico in this work is estimated at upwards of 750,000 fruits, chiefly oranges, peaches, and guavas. In a number of instances, individuals were fined in Mexican courts because they had not removed the summer host fruit. It should be emphasized that there is no fruit industry of importance on the Mexican side, and that the fruit concerned is merely little garden plantings for home use, and that, therefore, this action on the part of Mexican officials and the cooperation of Mexican citizens was a purely friendly and neighborly act.

NEW AND REVISED PLANT QUARANTINES

DOMESTIC

The following quarantines have been either promulgated or revised during the year:

The white-pine blister-rust quarantine was amended February 20, 1928, by adding the State of Idaho and four counties in Oregon to the area designated as infected, and by making certain other minor changes in the regulations.

The European corn-borer quarantine was amended August 6, 1927, to simplify the conditions governing the movement of shelled corn; revised December 29, 1927, by extending the areas under regulation in the States of Michigan, Indiana, Ohio, Pennsylvania, New York, New Jersey, Vermont, Massachusetts, Rhode Island, and Maine; and amended May 21, 1928, by adding to the regulated area all that part of New York State not theretofore included.

The Japanese-beetle quarantine was amended August 3, 1927, by requiring inspection and certification of farm products and cut flowers grown in the infested area shipped interstate by boat from New York City; October 28, 1927, by extending the area under regulation in the States of Pennsylvania, New York, and Connecticut; and April 18, 1928, by adding mushrooms and broomcorn to the list of articles exempted from regulation, and by requiring certification of regulated farm products and cut flowers shipped interstate by boat from the markets of New York City irrespective of origin.

The pink-bollworm quarantine was revised July 9, 1927, to include the State

of Arizona; to add the counties of Grant, Hidalgo, and Luna in New Mexico to the regulated area; and to require compression as well as disinfection of cotton lint as a condition of interstate movement; and amended April 18, 1928, to add the counties of Winkler, Andrews, Ector, Crane, Upton, Midland, Martin, Dawson, and Glasscock, and portions of Borden and Howard in west-central Texas, to the regulated area.

The Thurberia-weevil quarantine was revised July 9, 1927, to include all of Cochise and part of Graham Counties, Ariz., in the regulated area, to require the compression as well as disinfection of cotton lint as a condition of interstate movement, specifying the conditions for interstate movement of cottonseed cake and meal, bagging and other containers of cotton, farm household goods, farm equipment, and other articles contaminated with cotton, and prohibiting the interstate movement of the Thurberia plant from any portion of Arizona.

The satin-moth quarantine was amended October 18, 1927, to extend the areas designated as infested in the States of Maine, New Hampshire, and Massachusetts.

The Mexican fruit-worm quarantine was promulgated August 10, 1927, restricting the interstate movement from the counties of Cameron, Hidalgo, and Willacy, Tex., of host fruits in the raw or unprocesssed state.

FOREIGN

The European corn-borer quarantine was amended July 5, 1927, to provide for the entry, under permit and in compliance with the requirements of the regulations, of green sweet or sugar corn on the ear.

The quarantine against Christmas trees and greens from portions of the Province of Quebec, Dominion of Canada, which has been in force since July 1, 1924, was revoked June 27, 1928, effective July 1, 1928. This action was made possible by the determination of the fact that the gipsy moth has been apparently eradicated in the Province of Quebec.

TERMINAL INSPECTION OF MAIL SHIPMENTS OF PLANTS AND PLANT PRODUCTS

The terminal inspection points in Oregon, Mississippi, and Arizona for the inspection of mail shipments of plants and plant products under the authority of the act of March 4, 1915, were revised during the year. No additional States inaugurated terminal inspection during the fiscal year 1928. California, Arizona, Montana, Florida, Washington, Arkansas, the District of Columbia, Mississippi, the Territory of Hawaii, Utah, Oregon, Georgia, Idaho, and Oklahoma, in the order named, had previously availed themselves of the provisions of the terminal inspection act.

CONVICTIONS AND PENALTIES IMPOSED FOR VIOLATIONS OF THE PLANT QUARANTINE ACT

The following convictions and penalties imposed for violations of the plant quarantine act were reported to the board during the year:

White-pine blister-rust quarantine: Three convictions, with fines aggregating $185.

Japanese beetle quarantine: Twenty-four convictions, with fines aggregating $757.

Mediterranean fruit fly and melon fly quarantine: One conviction, with fine of $25.

Quarantines affecting Mexican products: Four convictions, with fines aggregating $125. Fines aggregating $679 were also imposed by customs officials on the Mexican border against 131 persons caught in the attempt to smuggle in from Mexico prohibited plants and plant products. Another person, who attempted to smuggle in certain prohibited fruits, was excluded from the United States by the immigration board for at least one year.

U. S. GOVERNMENT PRINTING OFFICE: 1928